THE ROCKEFELLER FOUNDATION

THE PEW CENTER ON THE STATES

Measuring Transportation Investments

The Road to Results

MAY 2011

This report is a joint project of the Pew Center on the States and The Rockefeller Foundation.

The Pew Center on the States is a division of The Pew Charitable Trusts that identifies and advances effective solutions to critical issues facing states. Pew is a nonprofit organization that applies a rigorous, analytical approach to improve public policy, inform the public and stimulate civic life.

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The Rockefeller Foundation fosters innovative solutions to many of the world's most pressing challenges, affirming its mission, since 1913, to "promote the well-being" of humanity. Today, the Foundation works to ensure that more people can tap into the benefits of globalization while strengthening resilience to its risks. Foundation initiatives include efforts to mobilize an agricultural revolution in Sub-Saharan Africa, bolster economic security for American workers, inform equitable, sustainable transportation policies in the United States, ensure access to affordable and high-quality health systems in developing countries, accelerate the impact investing industry's evolution, and develop strategies and services that help vulnerable communities cope with the impacts of climate change. For more information, please visit www.rockefellerfoundation.org.

The Rockefeller Foundation
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Dear Reader:

Most states are entering their fourth year of the ongoing budget crisis, and policy makers around the country are making tough choices about where to devote limited resources. With states spending an estimated $131 billion in 2010 alone on their transportation systems, it matters more than ever that every dollar delivers a strong return on taxpayers' investment.

This report by the Pew Center on the States and the Rockefeller Foundation identifies which states have the essential tools in place to make more cost-effective transportation funding and policy choices. We conclude that states generally have the goals, performance measures and data to help them measure progress on safety and infrastructure preservation. But in several other important areas—including jobs and commerce and environmental stewardship—policy makers and the public in many states need better and more information about the results they are getting for their money.

Growing interest at both the federal and state levels in measuring performance and outcomes is a sign of progress. And solutions exist: Across the country, state leaders have developed proven approaches to using results-based data to drive transportation spending and policies and to ensure their decisions advance economic growth and other important goals. This report profiles many of these approaches. Even states that are "leading the way" in our assessment, performing relatively better than other states, have room for improvement.

This study builds on the interest and experience of both Pew and the Rockefeller Foundation in providing federal and state leaders with the vital information they need to weather today's fiscal challenges. We hope this report will help guide their efforts to develop a transportation system that reliably serves citizens every day and advances states' prosperity well into the future.

Sincerely,

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Executive Summary

In fiscal year 2010, states spent an estimated $131 billion in taxpayer dollars on transportation.[1] Yet many policy makers cannot answer critical questions about what results this investment is generating. Just 13 states—California, Connecticut, Florida, Georgia, Maryland, Minnesota, Missouri, Montana, Oregon, Texas, Utah, Virginia and Washington—have goals, performance measures and data needed to help decision makers ensure their surface transportation systems are advancing economic growth, mobility, access and other key policy outcomes. Nineteen states trail behind, lacking a full array of tools needed to account for the return on investment in their roads, highways, bridges and bus and rail systems. The remaining 18 states and Washington, DC, fall someplace in between, with mixed results. Three of those—Colorado, Michigan and Pennsylvania—just missed earning the top distinction. (See Exhibit 1.)

These are the key findings of a study by the Pew Center on the States and the Rockefeller Foundation, based on a review of publicly available documents and interviews with scores of state and federal officials and experts in the field.

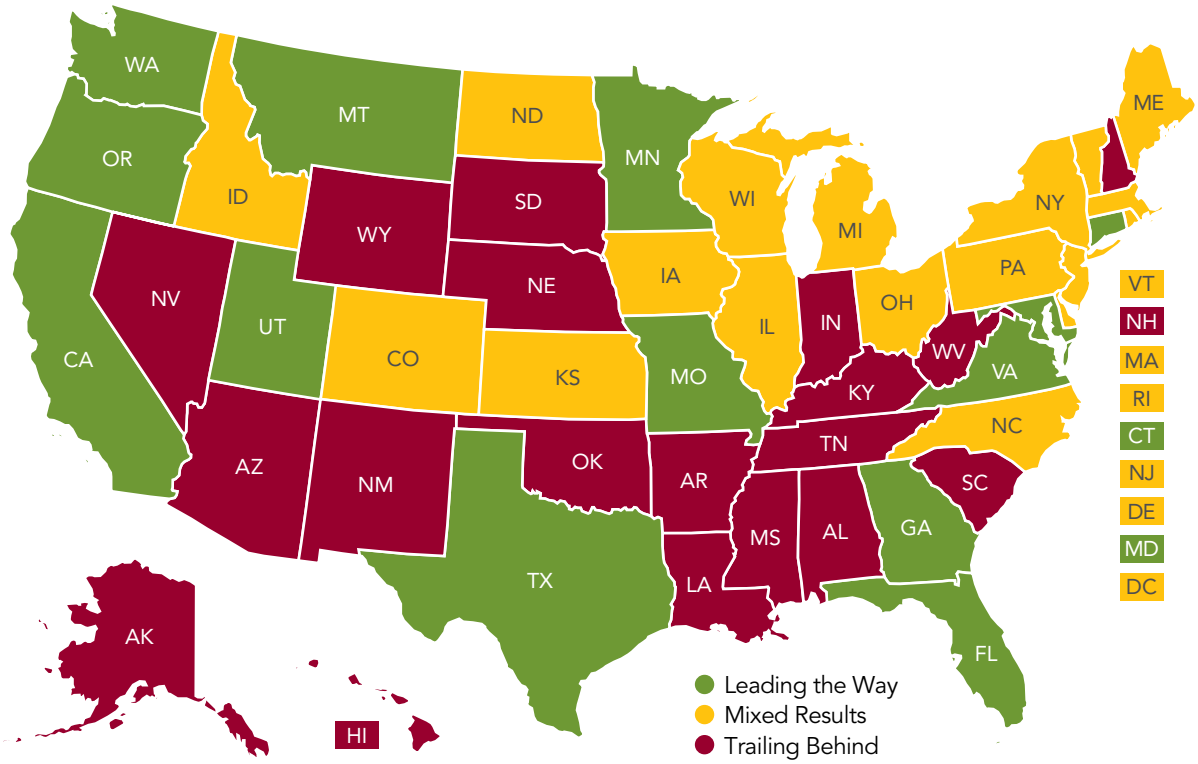
State policy makers want to demonstrate they are delivering the most cost-effective services possible for the public. Today, it is more important than ever that every tax dollar spent on transportation generates the best results and advances states' short- and long-term economic interests. Most states are entering their fourth year of the ongoing budget crisis, with revenues far below pre-recession levels and expenditures rising—and policy makers around the country are making tough choices about where to spend limited resources. Meanwhile, some members of Congress are proposing that the next surface transportation reauthorization act, the law that governs the largest federal funding streams for states' transportation systems, move from a compliance-based to a performance-based approach and more closely tie dollars to outcomes.

The goal of this assessment of the 50 states and Washington, DC, is to identify which are doing the best in terms of having essential tools in place to make cost-effective transportation funding and

Exhibit 1

Not Measuring Up

Many states lack essential information to identify what they are getting for their transportation dollars in key areas such as environmental stewardship and jobs and commerce. The 13 states leading the way have goals, performance measures and data that put their lawmakers in a better position to make cost-effective policy and spending choices.



SOURCE: Pew Center on the States and the Rockefeller Foundation, 2011.

policy choices—and to help lawmakers understand how to use these tools to do a better job with limited dollars. The research examines six policy areas affected by those choices that are particularly important to states' economic well-being and taxpayers' quality of life: safety, jobs and commerce, mobility, access, environmental stewardship and infrastructure preservation.

To advance these broader objectives, state lawmakers must make transportation policy and spending choices based on solid information about what works and what does not. But unless states have clear goals, performance measures and good data in place to generate that information, it is very difficult for policy makers to prioritize transportation investments effectively, target scarce resources and help foster economic growth.[2]

The Pew-Rockefeller assessment reveals considerable differences among the 50 states in linking their transportation

SIX GOALS FOR STATES' TRANSPORTATION SYSTEMS

The Pew-Rockefeller research focused on six important and widely accepted goals for states' transportation policies and investments:

1. Safety. The ability of the transportation system to allow people and goods to move freely without harm. Performance measures include fatalities and injuries from transportation-related incidents across all modes of transportation.

2. Jobs and commerce. How well the transportation system facilitates or supports business development and employment. Performance measures include job creation, the movement of freight and estimates of the economic return from policies and investments.

3. Mobility. The efficient movement of people between destinations by automobile, pedestrian, bicycle and transit modes. Performance measures include congestion levels, travel times, travel speed and volume, time lost to traffic delays and on-time transit performance.

4. Access. The ability of the transportation system to connect people to desired goods, services, activities and destinations for both work and leisure, and to meet the transportation needs of different populations. Performance measures include availability and use of multimodal transportation options—including public and private transit and pedestrian and bicycle access—for the general public and populations with specific needs, such as elderly, disabled and low-income individuals.

5. Environmental stewardship. The effect of the transportation system on energy use and the natural environment. Performance measures include fuel usage, transportation-related emissions, climate change indicators, and preservation of and impact on ecological systems.

6. Infrastructure preservation. The condition of the transportation system's assets. Performance measures include the physical condition of roads, bridges, pavements, signs, culverts and rail systems.

systems to and measuring their ongoing performance toward these important policy goals.

States were rated according to three levels—leading the way, having mixed results or trailing behind—for each of the six goals. Each state also was given an overall rating based on how it performed across the six goals. The 13 states leading the way overall publicly report useful data on their transportation systems that policy makers can use to advance economic competitiveness, improve citizens' access to jobs, help residents and tourists move about more efficiently and mitigate the effects transportation can have on the environment, among other

outcomes. This information puts their lawmakers in a better position to make wise investments over the short and long terms, choose cost-effective policy options and ensure the likelihood of a strong return for taxpayers.

Most of the remaining states performed best in the areas of safety and infrastructure preservation, where both the federal and state governments have a long history of setting goals, using performance measures and collecting data (see Exhibit 2). Roughly half the states fared well in the areas of mobility and access—but only about a quarter earned the top distinction in the areas of jobs and commerce and environmental stewardship because they do not measure their progress and return on investment in a comprehensive and effective way.

Safety: All 50 states and Washington, DC, earned the top distinction.

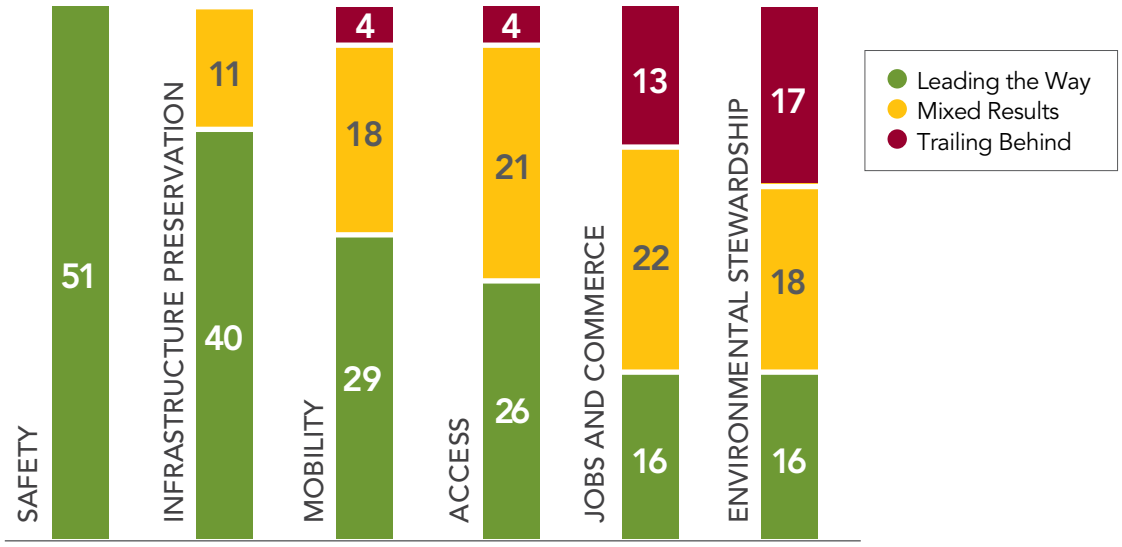
Jobs and commerce: 16 states are leading the way, 22 have mixed results and 12 states and Washington, DC, trail behind.

Mobility: 28 states and Washington, DC, are leading the way, 18 states have mixed results and four states trail behind.

Exhibit 2

How States Stack Up

Most states and Washington, DC, have the tools in place to understand the impact of transportation investments on safety and infrastructure preservation. But many lack these tools in the areas of environmental stewardship and jobs and commerce.



SOURCE: Pew Center on the States and the Rockefeller Foundation, 2011.

Access: 25 states and Washington, DC, are leading the way, 21 states have mixed results and four states trail behind.

Environmental stewardship: 16 states are leading the way, 18 states have mixed results and 16 states and Washington, DC, trail behind.

Infrastructure preservation: 39 states and Washington, DC, are leading the way, 11 states have mixed results and no states trail behind.

(See the "How Are States Doing?" section, Appendix A: State-by-State Ratings and individual state fact sheets for detailed results; see Appendix B: Methodology for further description of the rating system and criteria.)

Growing Momentum for Change

Historically, states have not made transportation policy or spending decisions based principally on data analysis or cost-benefit comparisons of different options. A December 2010 report by the U.S. Government Accountability Office (GAO) found that "only a select few states have made significant attempts to integrate performance measurement into their statewide planning process to inform investment decisions."[3]

CAVEATS OF THE STUDY

The study does not evaluate states based on whether or to what degree they actually have achieved these goals. We were not able to assess how individual policy decisions are actually made at the state level, including whether decisions are grounded in evidence, whether interagency cooperation is part of the decision-making process or whether policies are targeted at meeting agreed-upon goals. Instead, states are evaluated based on whether they have the essential tools in place to help them understand if they are making progress. This approach acknowledges that states are still in the process of learning how best to use performance measurement information in making policy decisions.

Readers should be cautious in interpreting the results; for example, states that are "leading the way" in our assessment are performing relatively better than other states, but in many cases still have room for progress. Given the fledgling state of the field in developing goals, performance measures and data, particularly in areas such as jobs and commerce and environmental stewardship, we assessed whether states could meet a baseline threshold in each of the six areas we examined. We did not comprehensively assess the quality or quantity of information in each area. (See Appendix B: Methodology for a complete explanation.)

Thirty states reported that political support was of great or very great importance in selecting projects; just 11 states said that economic analysis—the cost effectiveness or projected economic impact of a proposal, for example—was of great or very great importance, according to the GAO's survey of state transportation planning officials.[4]

But states' careful setting of priorities—with return on investment in mind—is growing increasingly important, for three main reasons.

First, taxpayer dollars are in short supply.[5] The key funding sources for states' transportation systems are federal and state excise taxes on gasoline, but improved fuel efficiency has reduced gas use and thus lowered revenues. The federal excise tax on gasoline—currently 18.4 cents per gallon—is the same as it was in 1994, even as prices at the pump have risen dramatically. From 1994 to 2009, the federal gas tax declined 38 percent in real purchasing power.[6] And while states' general funds contribute a very small portion toward transportation, the Great Recession has constrained that source from helping make up the difference in gas tax revenue. Some 15 states experienced midyear budget cuts in transportation in fiscal year 2010, and federal funding from the American Recovery and Reinvestment Act will continue to dwindle over the coming years.[7]

Second, policy makers increasingly are recognizing the essential role transportation plays in driving their states' economies—and the consequences if it fails that role. "Job creation will not be sustainable without a transportation system that is reliable," Virginia Governor Bob McDonnell (R) said in his state of the commonwealth address in January 2011. "Transportation helps drive economic growth."[8] In Maryland, Governor Martin O'Malley (D) has expressed similar sentiments. "Our transportation network and infrastructure is the lifeline of our economy," O'Malley says. "And it's also our connection to the broader global economy. …Transportation is what allows the flow of economic oxygen."[9]

Taxpayers also seem to understand the connection: 80 percent of voters agree that federal funding to improve the nation's transportation system will boost local economies and create jobs, according to a February 2011 survey by the Rockefeller Foundation.[10]

Third, states increasingly are gathering information on outcomes across a range of issues. While more lawmakers need to use data in making policy and spending decisions, a growing number are acknowledging the importance of greater planning, accountability, evaluation and consideration of return on investment. Pew's Government Performance Project tracked a significant improvement in statewide and agency strategic planning:

In 1999, relatively few states had agencies or departments specifically tasked with looking into the success or failure of programs. As of 2008, four out of five states did.[11]

States are showing momentum toward improving transportation results by tracking their progress through goals, performance measurements and better data. Among the examples identified by the Pew-Rockefeller study:

In **Washington State**, following a significant reduction in funding in 2000 and a voter referendum in 2002 that rejected allocating additional monies, the state's Department of Transportation (WSDOT) began scoring potential projects according to performance change per dollar spent, ranking the most cost-effective approaches to the state's transportation safety, congestion, environmental and economic goals. This performance-oriented practice contributed to the legislature's willingness to allow the state to sell bond issues by increasing the gas tax by 5 cents in 2003 and by 9.5 cents in 2005 (phased in over four years), and ultimately increased public confidence in WSDOT.[12]

Missouri has advanced tools in the area of jobs and commerce to develop state and regional estimates of employment, income and the economic return on transportation investments. Missouri also tracks trends in freight tonnage and includes detailed information by mode, including port, motor carrier, aviation and rail.[13]

Georgia has initiated a performance-oriented strategic planning and project prioritization process as part of the lead up to a statewide vote in 2012 on increasing taxes to fund specific transportation needs. That vote will allow each of 12 special transportation districts in the state to decide on a list of projects and a 1 percent sales tax increase to fund them. Georgia adopted a business-case approach, assessing potential projects according to performance measures that relate to mobility and economic development, in an attempt to determine what types of projects provide the best return on investment. For example, the state is using projections of the impact that various funding levels and projects would have on the number of workers in the state who could reach their jobs within 45 minutes by car or public transit.[14]

Minnesota is using performance measures for 10 policy areas identified in its 2009–2028 Statewide Transportation Policy Plan. These measures include adjusting to the transportation needs of a growing and aging population and enhancing mobility by reducing congestion across the 9 percent of the highway system that carries about 50 percent of the state's roadway travel.[15]

New Mexico estimates the unserved need for public transit in rural areas, focusing on elderly, disabled and low-income

individuals. The results help state officials understand which parts of the state offer the least access to populations that most need it, and prioritize expanding or adding new transit routes to particular regions. New Mexico's Statewide Public Transportation Plan of January 2010 used this approach to identify rural communities in need and rank proposed transportation projects by estimated new ridership, cost per additional rider and improvements to accessibility.[16]

Oregon measures the number and rate of crashes in which large trucks were at fault. It focuses on commercial drivers because data show that of the 671 truck at-fault crashes that occurred in 2008, only 35 resulted from mechanical problems. Oregon has instituted more frequent inspections, safety compliance reviews and removal of drivers from service in the event of violations. 2008 data show mixed progress: The rate of large truck at-fault crashes increased slightly from .37 to .38 per million vehicle miles traveled (VMT).On the positive side, truck crashes resulted in 4.4 percent fewer injuries and 34.6 percent fewer deaths.[17]

Policy Options

What can lawmakers do to improve taxpayers' return on investment in states' transportation systems, even in difficult fiscal times? Several policy options emerged from the research:

Improve the information. The most obvious step is to push for better information—moving toward a heightened focus on results, improving the usefulness of performance measures and making sure those measures link to concrete goals that reflect a state's larger priorities, such as jobs and commerce. The federal government, states and localities can help each other by publicizing new approaches to measurement, establishing consistent measures for common benchmarking, and continuing to work on such areas as commerce and access, in which there is disagreement or uncertainty about the best measures to use.

Enact or improve performance measurement legislation. Laws at both the federal and state levels can make a significant difference. While the details vary, such legislation generally prescribes a consistent use of measurement, benchmarking against goals and evaluation; it also seeks to spur states to go beyond collecting information by mandating that they actually use the information when making important transportation policy and funding choices. For instance, in some cases, budget requests are tied to submission of performance data.

At the federal level, congressional deliberations about a new, multiyear highway and transit bill—likely to be considered in 2011—are expected to focus at least in part on transportation's ability to help advance America's economic growth, mobility, environmental stewardship and other key goals. There is momentum from both the executive and legislative branches

to include in the legislation an increased emphasis on states' use of performance measures and data collection to make transportation decisions.

Although 39 states have passed some form of legislation prescribing some sort of performance-based budgeting process, the act of making use of such information is incremental and usually lengthy.[18] Some experts say the new version of the Government Performance and Results Act passed by Congress in late 2010 includes models for making greater use of goals and measures at the state level. For example, the law requires that states focus on how agencies collaborate to achieve goals and on what happens when goals or targets are not met.[19]

Develop an appropriations process that makes better use of data. States need to develop more comprehensive systems that ensure that policy makers are asking for and using solid information in their deliberations about transportation spending. For example, the Appropriations Committee of the Connecticut General Assembly is working to establish a "Results-Based Accountability" approach that might become a model. Report cards from agencies on past performance are embedded in subcommittee budget books, along with a set of questions that encourage legislators to delve into the quality of work and demonstrated accomplishments before they make new funding choices.[20]

Increase the use of cost-benefit and other types of economic analysis in making transportation decisions. As noted above, only about 20 percent of states reported to the GAO that economic analysis of projects was of great or very great importance in deciding what to include in their statewide transportation plans.[21] States such as Washington, however, show that these efforts can save money and even lives. For example, Washington's research indicates that center-line rumble strips prevent serious crashes. Based on the cost of the strips and an assessment of the cost of crashes prevented, the state has determined that these infrastructure improvements provide a return on investment of approximately 25 to one.[22]

Better connect goals, measures and plans. States benefit from a holistic approach that combines setting goals, measuring performance and progress, and planning.[23] In Georgia, for instance, a recently released long-term strategic plan contains performance metrics linked to goals and a discussion of previous performance and investment. Several sections discuss performance metrics in direct relation to allocated funds and estimate the performance that could be achieved given different levels of funding.[24]

Track citizen feedback on transportation. The Pew-Rockefeller research found that most states do not measure citizen satisfaction with their surface transportation systems across the spectrum of the six goals studied. Yet Delaware and a few other states have found that citizen perceptions can yield important information for policy makers, informing decisions on such issues as road safety, transit service availability and project prioritization.[25]

Improve intergovernmental and interagency coordination. Transportation is a complex, joint partnership among the federal, state and local governments. Coordination between the federal government and states is crucial, given that Congress provides funding for more than 30 percent of state spending on transportation.[26] Equally important, federal coordination of state efforts has helped accelerate progress dramatically in areas such as safety. Meanwhile, greater collaboration among state, county and local officials can help improve outcomes—such as creating more consistent road condition information—and give policy makers better tools to make decisions based on need and effectiveness.[27]

Conclusion

Some Americans may think of the nation's roads, bridges and transit systems as ends unto themselves. In fact, they are instruments that can influence broader societal goals—from strengthening our economies and giving citizens better access to jobs to creating a cleaner environment.

Slowly but surely, federal and state policy makers are beginning to realize this. Still, in many states, this process is in its early stages, and states vary enormously in how well they are tracking transportation's impact on key policy goals. As this study has found, a majority of states now have comprehensive measures for transportation in the areas of safety and infrastructure preservation. Far fewer measure performance comprehensively or effectively in the critical areas of mobility, access, environmental stewardship, and jobs and commerce—all vital for states' economic well-being.

Our research demonstrates that when it comes to transportation policy and spending, even states most thoroughly guided by results-based decision making still have a distance to go before they can declare victory. But the growing appreciation among policy makers of the value of such efforts is a reason for cautious optimism.

Tight Dollars and Economic Growth

In fiscal year 2010, states spent an estimated $131 billion in taxpayer dollars on transportation.[28] But it was not nearly enough to meet the nation's needs. The National Surface Transportation Infrastructure Financing Commission in 2009 cited a long-term average annual shortfall of $46 billion nationally just to keep surface transportation at status quo, let alone improve the system.[29] And no sudden influx of additional cash will be forthcoming from any level of government anytime soon. Meanwhile, states are entering their fourth year of the ongoing budget crisis. They have closed more than $400 billion in budget gaps since 2008, but now face projected shortfalls of $82 billion in fiscal year 2012 and $66 billion in fiscal year 2013.[30]

At the same time, federal and state policy makers and experts across the country are acknowledging that states' transportation systems are essential to helping advance economic growth, mobility, access and other central policy goals. For both of these reasons, state decision makers should be basing transportation policies and spending choices on the best possible data about what delivers the strongest return on investment.

Many, however, are not doing so. This study, a joint project of the Pew Center on the States and the Rockefeller Foundation, finds just 13 states leading the way in having goals, performance measures and data that tie surface transportation policy and investment choices—for roads, highways, bridges, and bus and rail systems—to economic growth and other key policy areas. Nineteen states trail behind, with no comprehensive capacity to account for return on investment in their transportation systems. The remainder—18 states and Washington, DC—have mixed results, falling someplace in between.

The research found that all states now do a fairly good job of tracking the safety of their roads and physical condition, or preservation, of their transportation infrastructure. But many states still cannot answer critical questions about the return on taxpayers' investment in transportation in terms of mobility, access, environmental stewardship and jobs and commerce.

Historically, states have not prioritized or funded transportation projects based on solid data analysis or by comparing the costs and benefits of various options. The U.S. Government Accountability Office (GAO) reported in December 2010 that states assign greater importance to factors such as "political and public support" than to an economic analysis of project benefits and costs.[31]

Specifically, 30 states indicated that political support was of great or very great importance in the decision to include projects in their statewide transportation improvement programs (STIP)—the list of projects prioritized by the state to receive federal funding over a four-year period—while only 11 states cited an "economic analysis of projects" as being either of great or very great importance, according to the GAO's survey of state transportation planning officials.[32]

Yet a growing number of policy makers, business leaders and experts cite the need to ensure that dollars spent on transportation generate a strong return on investment and broad economic benefit to taxpayers.

"We want to shift the public debate and discussion from shovel ready, scattershot approaches … to a focus on investing for performance that will add to long-term economic growth," Thomas J. Donohue, president and CEO of the U.S. Chamber of Commerce, said in a speech in September 2010. "We want elected officials to recognize, acknowledge and act on the fact that transportation infrastructure investment is a growth leader. And we want policy makers to create more effective, targeted policies and programs."[33]

Last December, Virginia Governor McDonnell (R) proposed that the state spend $400 million on roads and bridges immediately and borrow $2.9 billion for further maintenance and improvement during the next three years. "Job creation will not be sustainable without a transportation system that is reliable," Governor McDonnell said in his 2011 state of the commonwealth address. The Virginia Department of Transportation "manages the nation's third largest road network with 57,867 miles of roads, and nearly two million Virginia jobs in leading industries are fully dependent on the state's transportation network."[34]

When Indiana Governor Mitch Daniels (R) travels, he typically shows a map with concentric circles that illustrates three-quarters of America's population can be reached in a one-day truck drive from Indiana. He tells audiences that "trucking companies know exactly what 15 minutes on the road cost when you've got a truck full of valuable raw materials or finished goods."[35]

Some states have learned the importance of transportation policy to their economies in the form of a rude awakening. Michigan was forced to

THE FUNDING GAP

State transportation funding comes from a diverse range of revenue sources (see Exhibit 3). On average about 57 percent of the funds come from dedicated state monies including state excise taxes and tolls, 9 percent come from bond proceeds and 4 percent come from general revenues. The remaining 31 percent of state transportation spending in 2009 came from federal funds.[36]

Yet huge funding needs remain, driven by aging infrastructure, neglected maintenance and a 13 percent increase in vehicle miles traveled between 1998 and 2008.[37] And revenues from federal and state excise gas taxes have not kept pace with needs.[38]

States such as Pennsylvania highlight the magnitude of the problem. The Pennsylvania State Transportation Advisory Committee concluded in 2010 that the commonwealth faced an annual shortfall in surface transportation funding of some $3.5 billion, which includes additional construction and which will need to grow with inflation.[39]

Not only have funding sources continued to fall short, they are shrinking further in many states (see Exhibit 4). Some 15 states confronted budget cuts in transportation in fiscal year 2010, according to the National Association of State Budget Officers (NASBO), and federal funding provided through the American Recovery and Reinvestment Act will continue to dwindle over the coming years.[40] Arizona, for instance, cut a quarter of its transportation budget in 2009 and 2010.[41]

Exhibit 3

Driven by Dollars

Dedicated state monies, including toll revenues, comprise more than half of the dollars spent on transportation. A variety of state and federal sources supply the remaining funds.

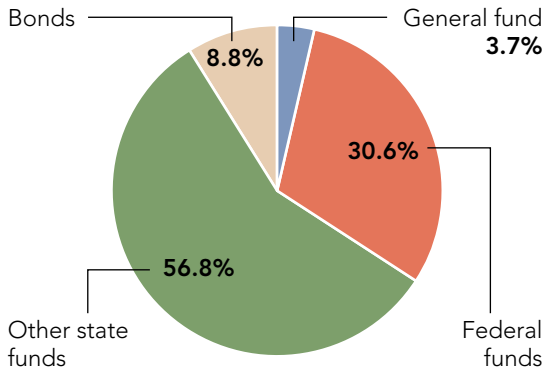
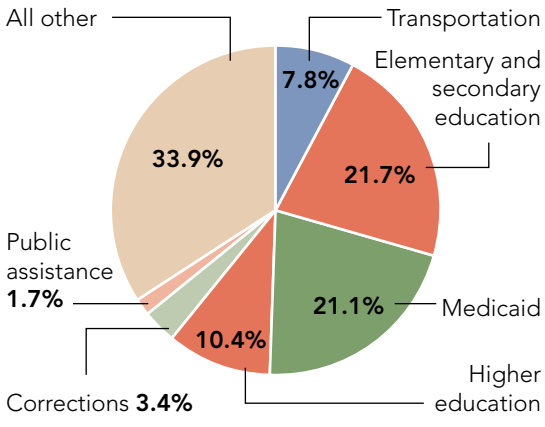


Exhibit 4

Transportation's Piece of the Pie

In 2009, transportation followed education and Medicaid as a major area of total state spending.



SOURCE: Pew Center on the States and the Rockefeller Foundation, 2011, based on data from the National Association of State Budget Officers' "State Expenditure Report," Fall 2010.

confront the consequences of reduced transportation investments when huge budget shortfalls put the state in jeopardy of losing $500 million in federal money if it could not offer its share of matching grants. Ultimately, the state came up with the necessary funds. The Michigan Department of Transportation reported that if the state had not obtained the federal money, the cumulative hit to the gross state product from 2010–2014 would have been $1.7 billion.[42]

A large body of research has shown that transportation investments generate economic returns. One economic analysis commissioned by the Federal Highway Administration in 1998 looked at 35 diverse industry sectors and found that in 32, an increase in highway spending would lead to an estimated decrease in costs and thus to an increase in economic output. Other research has shown similar results.[43] "The overall benefits of transportation investments to the broader economy are estimated to be five times the $240 billion spent by governments each year on highway, transit and other transportation infrastructure," Susan Martinovich, director of the Nevada transportation department and president of the American Association of State Highway and Transportation Officials (AASHTO), told a U.S. Senate committee in January 2011, citing federal statistics.[44] Additionally, economic growth created by transportation spending is well suited to creating middle-class jobs, according to a 2010 report from the Department of the Treasury and the Council of Economic Advisers.[45]

But not all transportation funds are well spent. "While transportation investment always 'creates jobs,' its net effect on workers and the economy as a whole will be positive only if government transportation investments are rigorously selected," noted a January 2011 report by the Bipartisan Policy Center, a Washington, DC-based nonprofit established by two Republican and two Democratic former U.S. Senate majority leaders. "Poorly targeted transportation dollars represent a wasted opportunity that the country can ill afford given its current fiscal predicament."[46]

Growing pressure from the public to demonstrate what they are getting for their tax dollars also is a factor. A 2010 study by the Pew Center on the States and the Public Policy Institute of California tracked public opinion in five fiscally stressed states: Arizona, California, Florida, Illinois and New York. It found that when asked which of their state's biggest expenses they would least protect from budget cuts, a far bigger portion of respondents in each state—from 46 percent in New York to 55 percent in Illinois—favored cuts to transportation over reductions in funding for higher education, Medicaid and K-12 education.[47]

A February 2011 survey commissioned by the Rockefeller Foundation provides another perspective—a closer look at the public's opinion of federal transportation

spending. The poll found that 80 percent of voters think federal funding to improve and modernize transportation will boost local economies and create jobs. But nearly two-thirds see current federal investments as "inefficient and unwise," with nine in 10 respondents supporting greater accountability for transportation spending—indicating a desire to ensure that every dollar delivers a strong return. The poll showed little support for raising the gas tax to support necessary transportation improvements, but majorities said they are open to innovative funding sources, such as public-private partnerships and a proposed National Infrastructure Bank.[48]

"It's sometimes hard to convince citizens or even businesses of the need to invest [in transportation], because it can take a long time for your average business owner or citizen to see the fruits of such investment," says Maryland Governor Martin O'Malley (D). "Our transportation network and infrastructure is the lifeline of our economy. Transportation is what allows the flow of economic oxygen….so we have to measure performance and squeeze every penny we can out of our transportation investments."[49]

"Transportation [is] a means to an end, an enabler," says Emil Frankel, director of transportation policy at the Bipartisan Policy Center. "We should be using transportation funding to achieve these broad goals of energy, economic growth, public safety and so on."[50]

There are signs that such attitudes about transportation are gaining traction around the country.

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Growing Momentum for Change

Broadening recognition among policy makers, business leaders and researchers about the essential role transportation plays in states' economies is helping spur a movement toward results-informed decision making that has been gaining traction at the federal level and in a number of states. "The expectation around the country is that the government can no longer use the public's money without knowing what benefits and results we're getting with the investment of those dollars," says Paula Hammond, secretary of transportation in Washington State.[51] The persistence of high unemployment and the long-term impact of the recession on state revenues underscore the importance of measuring the impact of every dollar spent on transportation.

At the Federal Level

The relationship between the federal government and the states—and the impetus it has provided for change—has been particularly strong in the area of safety. Successes there have been cited not only as models within the field of transportation, but also as broader examples of how the federal government and states can work together effectively in other areas as well.[52]

Aiming to reduce traffic fatalities, the National Highway Traffic Safety Administration has worked for several decades with state and local officials to share information about transportation safety and the factors that facilitate that goal. The approach has differed from the more common federal focus on regulation and compliance, concentrating instead on creating a collaborative relationship with the states that starts with data analysis and goes on to encourage policies that have been proven to work.

The federal government's focus on safety received a major boost when the most recent version of the federal highway authorization act, in 2005, required a "statewide-coordinated strategic highway safety plan" in every state to reduce highway fatalities and injuries on all public roads.[53] In 2008, the Governors Highway Safety Association agreed on a minimum set of performance measures that would track progress in establishing highway safety plans and programs on driver behavior. An expert panel involving federal

and state officials, research organizations and other groups worked together to develop the measures that the states agreed to track.[54]

While using data to help improve safety has proven to be successful, similar efforts in other areas of policy reform have varied. In collaboration with the federal government, for example, states have gathered a great deal of information about road conditions, but in other areas, such as environmental stewardship and economic development, the federal government has been criticized for not providing the leadership states may need to reach important transportation-related goals.[55]

Generally, the information that the federal government requires from states about the nation's transportation systems is assembled in the Highway Performance Monitoring System, a database the Federal Highway Administration has been compiling since 1978. It includes a wide variety of data including information about traffic volumes, roadway, pavement and bridge design factors, and the percentage of volume in peak hours and in rush-hour directions.[56] One shortcoming: The presentation of this data can be difficult to understand, particularly when it comes to roads that stretch across multiple state borders. Meanwhile, the National Transit Database includes detailed information on the nation's mass transit systems.[57]

While transportation performance measures have been expanding at the federal level since the passage of the Government Performance and Results Act (GPRA) in 1993, a shortcoming of that legislation has been its failure to ensure that measures would be widely used to drive decision making. The GAO notes that federal oversight of transportation programs "has no relationship to the performance of either the transportation system or of the grantees receiving federal funds."[58] Federal funding of state transportation programs has been formulaic, and the federal government has no mechanism to see whether the planning it mandates for STIPs achieves results.[59]

Change may be coming on these fronts, though. For example, the GPRA Modernization Act of 2010, passed in December, encourages both the executive branch and Congress to use performance information to drive budget and policy decisions.[60]

In addition, there is ongoing discussion in Congress about moving from a compliance-based to a performance-based approach in the next surface transportation reauthorization act, due to be considered in 2011.[61] In 2009, the U.S. House Committee on Transportation and Infrastructure, chaired by Representative James L. Oberstar (D) of Minnesota, suggested a performance-based approach for the legislation, now

two years overdue.[62] The proposed act had a much greater focus than in the past on environmental stewardship, elevated the importance of transit and included requirements for state and local governments to measure their annual progress against performance standards.[63] However, it was not debated on the floor in either the House or Senate.

Representative John Mica (R) of Florida, the new chair of the House Transportation and Infrastructure Committee, has resolved to make passage of a multiyear authorization a top priority, strengthening the chances that a transportation bill will be brought to the House floor and approved during the first session of the 112th Congress—and there are signs that the next version will continue to move in a results-oriented direction.[64]

"There is consensus that performance measures and goals should be incorporated into the next highway bill in some fashion, but they must come with maximum flexibility for the states to meet those goals," says Representative John J. Duncan of Tennessee (R), a member of the Committee on Transportation and Infrastructure and chair of the Subcommittee on Highway and Transit. "It is important we make sure the states are performing well and making good use of the money we are giving them."[65]

"We do want performance measurements as part of this [reauthorization]," says Joel Szabat, the deputy assistant secretary for transportation policy in the U.S. Department of Transportation. "Most money will still go out by formula. But we hope that the reauthorization language will incorporate performance measures in some projects. You want to have merit project selection. You want to know what the benefits will be and then track to see if the benefits were there."[66]

At the State Level

Performance measurement has been around longer than most people in government realize. There have been efforts in the states to examine goals and measurements since the early 1900s, most of them initiated by academics. Despite a variety of experiments, for decades little progress was made toward using performance data either to drive or record progress.[67]

That began to change for states in the 1980s, as governments in such places as Missouri, Oregon, Texas, Utah and Virginia started gathering performance data for policy making. Initially, the vast majority of that information focused either on the dollar amounts spent on individual programs or projects (inputs) or on the amount of services or products provided (outputs). The information gathering placed minimal emphasis on the quality of the work or on the actual results it provided for taxpayers (outcomes).[68]

TIGER GRANTS

There are obstacles to using federal legislation to spur greater performance measurement and better outcomes among states, including political difficulties in agreeing on goals and the complexities of a transportation system that involves the federal government, 50 states and thousands of local entities, among other challenges.

The American Recovery and Reinvestment Act of 2009—also known as the federal stimulus—included significant funds for transportation infrastructure.

The largest pot of monies was $27.5 billion allocated to states for highway restoration, repair and construction.[69] Funds also were provided for public transit, high-speed rail and Amtrak. These dollars were intended to meet the dual purpose of improving the nation's infrastructure and preserving and creating jobs, although there is continuing debate about how many jobs resulted from these investments.[70]

One attempt within the federal stimulus to achieve a more performance-oriented approach has been a $1.5 billion discretionary grant program called Transportation Investment Generating Economic Recovery, or TIGER. These grants offered government entities money for transportation projects with clear objectives attached, including the preservation and creation of jobs, promotion of economic recovery, investment in infrastructure to provide long-term economic benefits and assistance for those affected by the economic downturn.[71]

The eligibility of all government entities was a major change from the past, as federal transportation dollars are usually funneled through states, transit authorities and port authorities. That meant that cities and regional planning authorities could receive direct grants, as could projects involving several jurisdictions. In addition, the TIGER funds provided particularly flexible funding that could be used across a variety of transportation modes. This meant, for example, that funding could go to a multimodal center, which allowed transit buses, light rail and heavy rail to come together in one location—a project that normally might have been difficult to fund. Similarly, a port project in Rhode Island was able to provide funding to road and rail lines, with the object of creating a more efficient transport of goods to and from the port.[72]

Some 51 projects were chosen, and at the end of 2010, the federal Department of Transportation (DOT) was working on establishing performance measures for each of the grant agreements. Progress will be tracked quarterly or yearly, depending on the project. Of course, given the

TIGER GRANTS (CONTINUED)

nature of transportation, many of the meaningful results may not arrive for half a decade or more—a factor that makes it challenging to assess impact and validate the methodology for projecting benefits.

Congress followed with an additional $600 million in funding in the regular budget, and that was awarded in TIGER II grants in October 2010.[73]

In the realm of transportation, $2.1 billion is not a great deal of money. The real significance of TIGER, according to some experts, is that it is a test case for a new approach to allocating federal dollars in transportation. TIGER requires state and local governments to demonstrate that their proposals fit general criteria set forth by the federal government—including relatively new ones such as environmental stewardship and the capacity to promote economic development. What is more, state and local governments are required to carefully measure the benefits of these expenditures to ensure they are meeting expectations.

One typical TIGER grant awarded $22 million toward a new station in downtown Normal, Illinois, a city along the Chicago-St. Louis Amtrak Line, which will serve Amtrak, city and long-distance buses and taxis. State officials say the project shows a potent multiplier effect in terms of economic development. "Since that project was announced, up to $200 million has been invested in the downtown area by businesses coming into town," says Joe Shacter, director of public and intermodal transportation at the Illinois Department of Transportation. "This included new hotels constructed right next to the intermodal facility."[74]

But TIGER has had its share of critics—Democrats and Republicans alike—who questioned how it was implemented and how projects were selected. After Connecticut failed to receive any TIGER grants in the first round of awards, for example, the state's entire congressional delegation met with Transportation Secretary Ray LaHood to raise questions.[75] Similarly, when Florida did not receive a grant in the first round, Representative Mica, the new chair of the House Transportation and Infrastructure Committee, in early 2010 criticized the DOT for making its own "executive earmarks," using a closed selection process that was not transparent enough for him and some others in Congress and for ignoring the law's instructions to aim those grants partly at economically distressed areas. Both Connecticut and Florida received TIGER grants in the second round of funding. Representative Mica has pledged that his committee will review the program.[76]

During the past 15 years or so, a steadily growing number of states have begun to gather information on outcomes. Many states still do not use this information consistently to allocate funding dollars—but lawmakers increasingly have acknowledged the need for greater planning, accountability, evaluation and consideration of return on investment across policy areas. Although budget constraints have slowed some of the work in this field, progress has been significant. Pew's Government Performance Project, which explored many aspects of state management, observed a significant improvement in statewide and agency strategic planning from its first report in 1999 to its most recent one in 2008. Similarly, a dozen years ago, relatively few states had agencies or departments with the specific responsibility of looking into the success or failure of programs. As of 2008, four out of five states did.[77]

State transportation departments fit neatly into that general theme, with growing momentum among the states toward improving transportation results coupled with increased efforts to guide and track progress through goals, performance measurements and better data. Jim Ray, former acting administrator of the Federal Highway Administration, explains that during the past 10 years, state highway departments have begun transforming themselves into entities more willing to consider return on investment for the projects they undertake. "It's out of necessity," he says. "All have done it through a gut-wrenching process. They're engineers and they'd love to go back to the day where the idea was, 'You just give us the money and let us build.' It's what they love and are good at. But that's not the DOT of tomorrow."[78]

In 2008, AASHTO, a nonprofit, nonpartisan organization representing highway and transportation departments in the 50 states, the District of Columbia and Puerto Rico, set up a new performance management committee, which has been working to help states improve and expand on performance measures. The committee was established with nine different technical task forces assigned to come up with different specific measures that states could use—including traditional asset management issues such as bridge condition, and novel topics such as "livability."[79]

AASHTO has opposed federal laws, regulations or funding formulas imposing performance measures and targets on states, recommending instead that national goals be set that allow states to define their own targets.[80] It has held forums on the ways that states, the federal government and other partner organizations could better incorporate performance measures into the planning and programming process. "Performance measures are not a new concept for DOTs. Lots of states have dashboards to measure congestion levels or whether projects are delivered on time

and on budget. And they are using this information as part of the decision-making process," says Matthew Hardy, program director for planning and policy for AASHTO. "What is new is a heightened collaboration in which AASHTO, local planning organizations and transit agencies are working with the federal government to come up with a small set of national goals that everyone shares."[81]

Some have expressed concern about how the federal government might use the data. Some state officials worry that if they do not show progress, then Congress will "do something onerous and restrictive," says Rich Margiotta, a principal at Cambridge Systematics, a transportation services and products firm.[82] Others wonder how the information would be used in making funding decisions. "Would they give more money to the states that are performing well or more money to the states that are performing poorly?" asks Steve Lockwood, former associate administrator for policy for the Federal Highway Administration and current senior vice president at PB Consult, the strategic and financial consulting arm of Parsons Brinckerhoff.[83]

Several states, including Washington, have taken to performance measurement enthusiastically. Captain Jason Berry, head of government and media relations for the Washington State Patrol, says solid performance measures allow him to show the legislature what is received for the money spent. He says legislators do not want to make million-dollar decisions based on anecdotes. "I have hard facts on exactly what we've produced in our history," he says. "I can grab factual information that comes along with a huge history and articulately speak to what we've been doing, to how that activity compares to the past."[84]

In 1999, a citizen initiative eliminated a motor vehicle excise tax that provided about a third of the state's transportation revenue.[85] As part of its reaction to the loss of revenue, the Washington Department of Transportation (WSDOT) in 2001 began making significant improvements in performance measurement. A number of officials believe that improved public understanding of what residents were getting for the investment in transportation contributed to legislative willingness to allow the state to sell bond issues and pay for them by increasing the gas tax by 5 cents in 2003 and by 9.5 cents (phased in over four years) in 2005. Those bond issues were tied to specific lists of projects, selected based on their impact on the state's economy, environment, congestion relief and safety. WSDOT went as far as monetizing the benefits of these projects and prioritizing them based on benefits relative to costs.[86]

At the Local Level

Metropolitan planning organizations (MPOs) have been one of the forces driving momentum in intergovernmental

coordination and performance tracking at the local and regional level.

MPOs are policy-making and planning bodies that trace their roots to a 1962 federal requirement that transportation projects in urban areas with populations greater than 50,000 be based on a "continuing, comprehensive and cooperative" planning process.[87] In 1991, the Intermodal Surface Transportation Efficiency Act required state transportation departments to coordinate more closely with MPOs. Under current federal law, every MPO is required to develop and pass an annual Transportation Improvement Plan.[88]

The San Francisco Bay Area Metropolitan Transportation Commission (MTC), for instance, coordinates with CalTrans, the California transportation department, on a wide variety of projects, says MTC spokesman John Goodwin, including, most recently, major alterations to preserve the area's bridges in case of an earthquake. The multiyear, $750 million initiative is on time and within budget in no small part because of the high level of cooperation with CalTrans, says Goodwin. "We can't do this on our own because we don't own the state highway system."[89]

Another significant legislative change affecting MPOs was the Transportation Equity Act for the 21st Century, enacted in 1998. Among other things, the legislation outlined seven criteria to be evaluated in planning highway projects: accessibility, economic development, efficiency, environment, mobility, safety and system preservation.[90]

A 2009 GAO report found that many MPOs do not focus on outcomes in evaluating their performance, but rather, on measuring process and compliance with regulations. One proposed solution has been for the federal government to play a larger role in helping MPOs develop the technical expertise to better analyze and model transportation outcomes.[91]

Still, some MPOs are starting to use stronger metrics to assess the current efficiency of transportation networks. For example, the Denver Regional Council of Governments (DRCOG), which is the MPO for that region, has been working on its own analysis of distinct population zones and the number of accessible jobs—for instance, potentially measuring how many zones in the region have access to at least 100,000 jobs by way of a 55-minute trip on public transportation.[92] Right now the exercise in the Denver region is measuring the present and not projecting into the future. But, according to Steve Rudy, DRCOG's director of transportation planning and operations, there is a strong inclination to start using the information as a planning device.[93]

How Are States Doing?

Do policy makers have the goals, performance measures and data needed to prioritize transportation investments, target scarce resources and ensure a strong return on investment for taxpayers?

To try to answer this question, Pew researchers reviewed more than 800 documents from states on transportation performance, planning and budgets. The purpose was to identify whether states have goals, performance measures and data that explicitly connect their transportation systems to economic growth—specifically, to six policy areas in which the outcomes generally are accepted by academics and practitioners as being particularly crucial to states' economic well-being and residents' quality of life. These areas reflect a general consensus among experts and organizations in the field.[94]

The six policy goals are:

1. Safety. The ability of the transportation system to allow people and goods to move freely without harm. Performance measures include fatalities and injuries from transportation-related incidents across all modes of transportation.

2. Jobs and commerce. How well the transportation system facilitates or supports business development and employment. Performance measures include job creation, the movement of freight and estimates of the economic return from policies or investments.

3. Mobility. The efficient movement of people between destinations by automobile, pedestrian, bicycle and transit modes. Performance measures include congestion levels, travel times, travel speed and volume, time lost to traffic delays and on-time transit performance.

4. Access. The ability of the transportation system to connect people to desired goods, services, activities and destinations for both work and leisure, and to meet the transportation needs of different populations. Performance measures include availability and use of multimodal transportation options—including public and private transit and pedestrian and bicycle access—for the general public and populations with specific needs, such as elderly, disabled and low-income individuals.

5. Environmental stewardship. The effect of the transportation system on energy use and the natural environment. Performance measures include fuel usage, transportation-related emissions, climate change indicators, and preservation of and impact on ecological systems.

6. Infrastructure preservation. The condition of the transportation system's assets. Performance measures include the physical condition of roads, bridges, pavements, signs, culverts and rail systems.

These goals interact in important ways. For example, better mobility—free-flowing traffic—is not necessarily good if the roads do not provide access to key destinations, such as jobs and hospitals, for the state's population needs.

This study evaluated states in each goal area according to three rating levels—leading the way, having mixed results, and trailing behind—assessing their capacity to measure the progress of their transportation systems toward the goal. The top distinction, leading the way, means that a state has in place a carefully considered array of goals, performance measures and data to tie transportation policy and spending choices to those important areas. The lowest rating, trailing

CAVEATS OF THE STUDY

The study does not evaluate states based on whether or to what degree they actually have achieved these goals. We were not able to assess how individual policy decisions are actually made at the state level, including whether decisions are grounded in evidence, whether interagency cooperation is part of the decision-making process or whether policies are targeted at meeting agreed-upon goals. Instead, states are evaluated based on whether they have the essential tools in place to help them understand if they are making progress. This approach acknowledges that states are still in the process of learning how best to use performance measurement information in making policy decisions.

Readers should be cautious in interpreting the results; for example, states that are "leading the way" in our assessment are performing relatively better than other states, but in many cases still have room for progress. Given the fledgling state of the field in developing goals, performance measures and data, particularly in areas such as jobs and commerce and environmental stewardship, we assessed whether states could meet a baseline threshold in each of the six areas we examined. We did not comprehensively assess the quality or quantity of information in each area. (See Appendix B: Methodology for a complete explanation.)

behind, means that a state lacks the full array of those tools. And mixed results means just that—a state has some of the tools in place, but lacks others.

States also were evaluated across all six goal areas and given an overall rating using the same three rating levels (see Exhibit 5).

Overall Results

The Pew-Rockefeller study identified 13 states as leading the way overall. Five—Maryland, Minnesota, Missouri, Oregon and Virginia—earned the top distinction in all six goal areas. Eight other states—California, Connecticut, Florida, Georgia, Montana, Texas, Utah and Washington—are leading the way in five of the six areas. Nineteen states trail behind, with limited capacity to account for return on investment in their transportation systems across the spectrum of six goals. The remaining 18 states and Washington, DC, had mixed results. (See Appendix A for a comprehensive list of ratings by state and also see individual state fact sheets for additional details.)

States Leading the Way Overall

The 13 states earning the top distinction represent a diverse mix of large and small populations, rural and urban concentrations, political leadership, geographic locations and economies. All present useful data policy makers can use to boost economic competitiveness, improve travelers' access to work and leisure activities, help citizens move about more efficiently and mitigate the impact transportation can have on the environment. The goals, performance measures and data these states have in

● Leading The Way Overall
California, Connecticut, Florida, Georgia, Maryland, Minnesota, Missouri, Montana, Oregon, Texas, Utah, Virginia, Washington

RATING LEVELS

Rating	Overall Assessment
● Leading the way	Leading the way in at least five goal areas; not trailing behind in any area
● Mixed results	Leading the way in four goal areas OR leading the way in three or fewer goal areas and showing mixed results in the remaining areas; OR leading the way in five goal areas and trailing behind in one goal area
● Trailing behind	Leading the way in three or fewer goal areas; trailing behind in at least one area

place for their transportation systems put lawmakers in a better position to choose among spending choices, capital investments and other transportation policy options. But even these states that are performing relatively better than others have room to make progress.

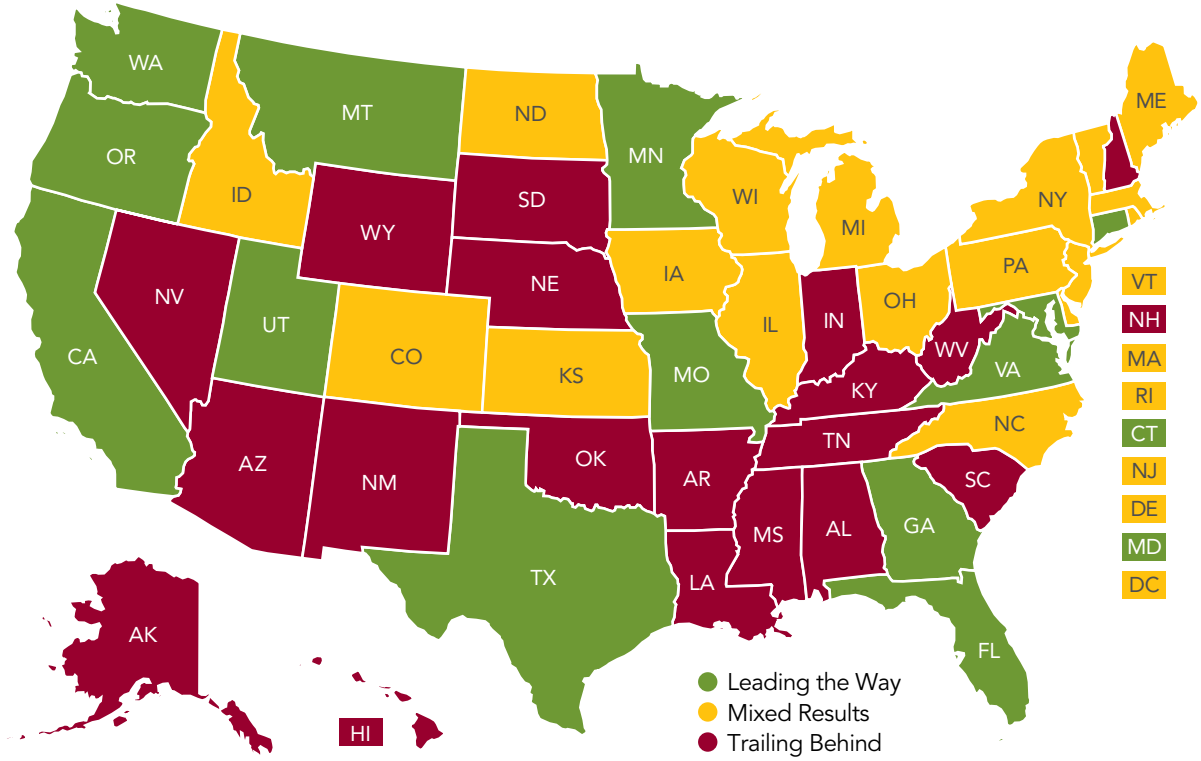
Among the examples:

Connecticut is strong relative to many other states in measuring progress toward access and environmental stewardship. The state tracks trend data on paratransit (special public transportation options for senior citizens and people with disabilities) ridership as part of its overall reporting on transit—which also includes breakouts for rural, fixed route and commuter express ridership.[95] Connecticut also reports customer satisfaction for its commuter rail service including the public's preferences for future improvements.[96] In environmental stewardship, the state has a measure and trend data on the amount of recycled material used in projects including details on the types of

Exhibit 5

Not Measuring Up

Many states lack essential information to identify what they are getting for their transportation dollars in key areas such as environmental stewardship and jobs and commerce. The 13 states leading the way have goals, performance measures and data that put their lawmakers in a better position to make cost-effective policy and spending choices.



SOURCE: Pew Center on the States and the Rockefeller Foundation, 2011.

materials—demolition debris, wood and steel. Connecticut also tracks the trend in overall greenhouse gas emissions and has targets for reductions by major sector including transportation.[97]

Florida, too, is exceedingly strong in the area of access. For example, the state tracks the transportation provided for its "transportation disadvantaged" citizens, and sets targets for serving those members of the population in future years. It also assesses the percentage of citizens using public transportation, including breakouts for the elderly.[98]

Georgia shows an especially sharp focus on jobs and commerce, access and mobility. The state provides performance information on the availability of alternative transportation modes, the average number of workers who can reach major employment centers within 45 minutes, and the percentage of the population living within 20 miles of a four-lane highway. Georgia has used measures like these as it initiates a new statewide strategic plan with a business-case approach for assessing potential transportation projects based on the best return on investment.[99]

Missouri has advanced tools in the area of jobs and commerce to develop state and regional estimates of employment, income and the economic return on transportation investments. Missouri also tracks trends in freight tonnage and includes detailed information by mode, including port, motor carrier, aviation and rail. And it tracks access by surveying customers about their satisfaction with the availability of transportation options other than their own vehicle.[100]

Montana also exemplifies strong results in the area of jobs and commerce. The state provides outcome data with breakouts and comparisons that can help policy makers target specific problems for improvement. It also collects sophisticated information about citizen satisfaction in all six goal areas. For example, the state surveys customers about priorities for transportation system improvements, asking them the degree to which a number of issues are perceived as problems including environmental concerns such as carbon monoxide emissions and the air quality impacts of roadway use. It also inquires about satisfaction with public transportation service availability. In the area of jobs and commerce, the state surveys economic development stakeholders representing business organizations and local development associations.[101]

Oregon illustrates the solid tools states can put in place to measure progress in the areas of jobs and commerce and mobility. The state tracks jobs associated with transportation construction expenditures and compares performance with past targets to assess progress. To understand and track mobility, the state measures the hours of travel delay per capita per year in urban areas and compares those data both

over time and with data from other cities. Oregon also measures citizen satisfaction about congestion in its communities, time delay in work zones and the amount of time needed to complete road construction.[102]

States with Mixed Results Overall

Eighteen states and Washington, DC, fall in the middle, with mixed results. The majority are leading the way in at least three areas—most commonly safety, infrastructure preservation and mobility—but have mixed results in the others. Three of these states—Colorado, Michigan and Pennsylvania—just missed earning the top distinction overall because they are trailing behind in one area.

States Trailing Behind Overall

Nineteen states trail behind in having adequate goals, performance measures and data. Many of these states do well in one or two goals—typically safety and infrastructure preservation—but they lack the capacity they need to track progress in at least half of the other categories.

Mixed Results Overall
Colorado, Delaware, Idaho, Illinois, Iowa, Kansas, Maine, Massachusetts, Michigan, New Jersey, New York, North Carolina, North Dakota, Ohio, Pennsylvania, Rhode Island, Vermont, Washington, DC, Wisconsin

Trailing Behind Overall
Alabama, Alaska, Arizona, Arkansas, Hawaii, Indiana, Kentucky, Louisiana, Mississippi, Nebraska, Nevada, New Hampshire, New Mexico, Oklahoma, South Carolina, South Dakota, Tennessee, West Virginia, Wyoming

ASSESSMENT CRITERIA

For each goal, states were assessed on 10 criteria. The criteria reflect both key elements of best practice in performance measurement and components of a good transportation management system, based on a review of the literature and interviews with experts. For a more detailed explanation of the criteria, see Appendix B: Methodology.

Setting goals. States—governors, legislatures and transportation agencies—are doing fairly well at establishing statements linking their transportation systems to jobs and commerce and other important goals. Forty-seven states and Washington, DC, have such statements about all six policy areas examined. (This study does not attempt to assess the quality or usefulness of the goal statements, but, as described below, does examine whether those statements are supplemented by performance measures and data.)

Presenting performance measures. Performance outcome measures, also called indicators, are necessary for showing the progress the state is achieving toward its goals. Our analysis distinguished between core measures—those that are critical to measuring and understanding a goal area—and non-core measures—those that are more peripheral to the goal area or that measure only a small slice. Core measures are most commonly presented in the areas of safety and infrastructure preservation (all states and Washington, DC) and mobility (46 states and Washington, DC). About two-thirds of states present core measures in jobs and commerce (39 states), access (33 states and Washington, DC) and environmental stewardship (31 states). (See Appendix E: Core Performance Measures by Goal.)

Providing data. Actual performance data for goals and performance measures are essential for tracking and understanding results that should drive funding and policy decisions. In the majority of cases across the six goal areas, states that have core measures also present associated data for at least one of those measures. In safety, infrastructure preservation and jobs and commerce, all states present data for at least one core indicator. In the other areas, no more than three states fail to present data for at least one core indicator.

Providing timely data. Given the nature of transportation projects, many of the most meaningful results may not arrive for half a decade or more—making it challenging to assess impact. Still, data are most useful for decision makers when they are as up-to-date as possible. In the area of infrastructure preservation, 42 states and Washington, DC, have recent (2009 or 2010) data for a core indicator; 38 states and Washington, DC, have recent core data for safety; and 28 states and Washington, DC, have recent core data for mobility. Only 19 states and Washington, DC, have timely data for a core indicator in the area of access. Just 14 and 13 states have recent core data for jobs and commerce and environmental stewardship, respectively.

Breaking down the numbers. Disaggregating data can be extremely helpful in making decisions about where to allot funding and in analyzing the causes of and solutions to problems. All states and Washington, DC, provide "breakouts" in the area of safety and about two-thirds do so

ASSESSMENT CRITERIA

for access (40 states and Washington, DC), infrastructure preservation (39 states and Washington, DC), mobility (38 states and Washington, DC), and jobs and commerce (34 states). Such detailed information is less common in the area of environmental stewardship (25 states).

Drawing comparisons. Comparisons over time or with other states offer valuable benchmarks and context. Researchers looked for three types of performance comparisons: (1) to another year; (2) to other states or some other external benchmark, or (3) to performance on past targets. In any single goal area, the largest number of states offering all three types of comparative analysis is five in safety, followed by four in infrastructure preservation, three each in mobility and environmental stewardship and two in jobs and commerce. No states provide all three types of analysis in the area of access.

Setting performance targets. By setting targets for their performance indicators, states can monitor how quickly and effectively they are moving toward their goals and whether they are meeting expectations. Targets are very common in the areas of safety and infrastructure preservation. Thirty-two states and Washington, DC, set targets to gauge their progress on mobility, 27 states and Washington, DC, set them for access, 20 states set them for environmental stewardship and 11 states set them for jobs and commerce.

Explaining results. When performance changes over time or targets are missed or exceeded, decision makers can benefit from narrative explanations of what happened. Explanations on what factors affected performance are most common for safety (39 states). Roughly equal numbers provide explanations for access (33 states and Washington, DC), infrastructure preservation (30 states and Washington, DC), jobs and commerce (29 states), environmental stewardship (27 states) and mobility (25 states).

Incorporating citizen and customer feedback. Collecting and analyzing citizen feedback about transportation systems can generate valuable ideas, inform policy and spending choices and help a state government stay in touch with its constituents. Thirty-four states and Washington, DC, measure citizen satisfaction with their surface transportation systems in at least one of the six goal areas. Montana and South Dakota were the only states to get a score for each goal area by asking citizens about priorities covering all six areas.

Considering performance for all transportation modes. Residents usually use several modes of transportation on a regular basis, and it is important to consider transportation performance comprehensively. States are most likely to present transit information in the areas of access and mobility, but not in the other categories. Forty-seven states and Washington, DC, report transit information related to access, and 20 states and Washington, DC, have transit measures related to mobility. In no other goal area do more than 11 states include transit information.

GOAL 1: **SAFETY**

The ability of the transportation system to allow people and goods to move freely without harm.

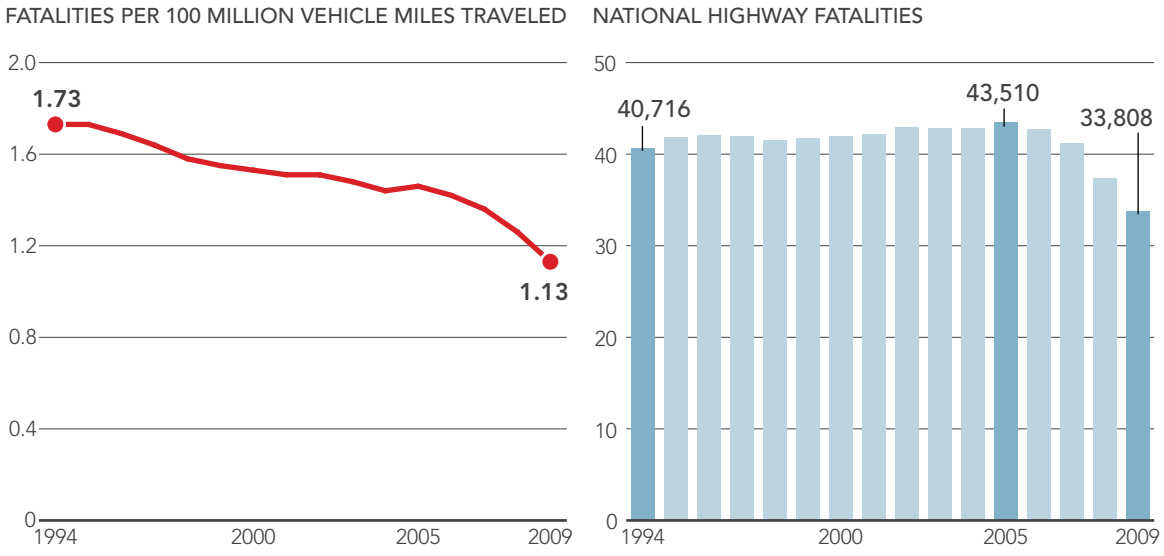
Safe roads are fundamental. The numbers tell the tale: The Centers for Disease Control and Prevention reports that motor-vehicle-related injuries are the leading cause of death for people ages one to 44, and automobile accidents sent more than two million people to emergency rooms in 2009.[103] Transportation-related accidents also generate high economic costs in lost wages, medical bills and traffic delays (see Exhibit 6).

As described earlier, federal-state coordination—and federal mandates and incentives for states—have played a key role in driving states' progress in the area of transportation safety. It began nearly a half century ago, when the Highway Safety Act of 1966 created Section 402 grants, which established the foundation for states and the federal government to work together on safety planning.[104] The most recent version of the federal highway authorization act, in 2005, required a "statewide-coordinated strategic highway safety plan" in every state to reduce highway fatalities and injuries on all public roads.[105] State officials were asked to consult with federal, state and local governments and the private sector to formulate the plans and develop an evaluation process to analyze and assess

Exhibit 6

America's Safer Highways

Federal and state emphasis on safety has led to a sharp decline in highway fatalities. The number of roadway deaths hit a 16-year low in 2009.



SOURCE: Pew Center on the States and the Rockefeller Foundation, 2011, based on data from the National Highway Traffic Safety Administration's Fatality Analysis Reporting System, accessed on February 2, 2011.

risks. States are required to include goals and performance measures in their applications for federal highway safety funds.[106]

The benefits of this kind of coordinated national approach can be seen in the spread of so-called "click it or ticket laws" that permit public safety officers to hand out tickets to drivers for a primary offense of not wearing seatbelts in a moving vehicle. North Carolina was one of the first states to pass such legislation, and when the National Highway Traffic Safety Administration (NHTSA) regional director saw how the law successfully increased seatbelt use and reduced fatalities, he pushed for expansion to nearby states.[107] "Click it or ticket" eventually became a nationwide program, with every state except New Hampshire passing some version of this legislation.[108]

Bicycle helmet laws have spread similarly—if not as widely. Some 21 states and Washington, DC, have laws that require bicyclists to wear head protection, according to the Bicycle Helmet Safety Institute. These laws have been driven by data that demonstrate dramatic declines in injuries and fatalities when bicyclists wear helmets. Duval County, Florida, for example, "reported an increase in helmet use by all ages from 19 percent in 1996 to 47 percent in 1997 after the Florida helmet law was passed. Bicycle deaths fell from five to one, and injuries from 325 to 105 [over the same period]," according to the Institute.[109]

During the past couple of years, states and the federal government have focused on the safety issue of so-called distracted drivers. Data correlating accidents to the use of cell phones and other texting devices have led states to pass legislation restricting their use by drivers.[110] Currently eight states and Washington, DC, prohibit all drivers from using handheld cell phones. Some 28 states and Washington, DC, do not allow cell phone use by newly licensed drivers. And text messaging while driving has been banned in 30 states and Washington, DC; 11 of these laws were enacted in 2010 alone.[111]

There still are significant challenges to be addressed. For example, some observers complain that an emphasis on fatalities misses some important data, such as serious injuries—but fatalities have been the focus because it is far more difficult to collect good comparative data on property damage or even injuries. In addition, all of the NHTSA performance measures created in collaboration with the Governors Highway Safety Association focus on driver behavior, not on infrastructure.[112]

Where the States Stand on: **Safety**

- ***All 50 states and Washington, DC, earn the top distinction.***

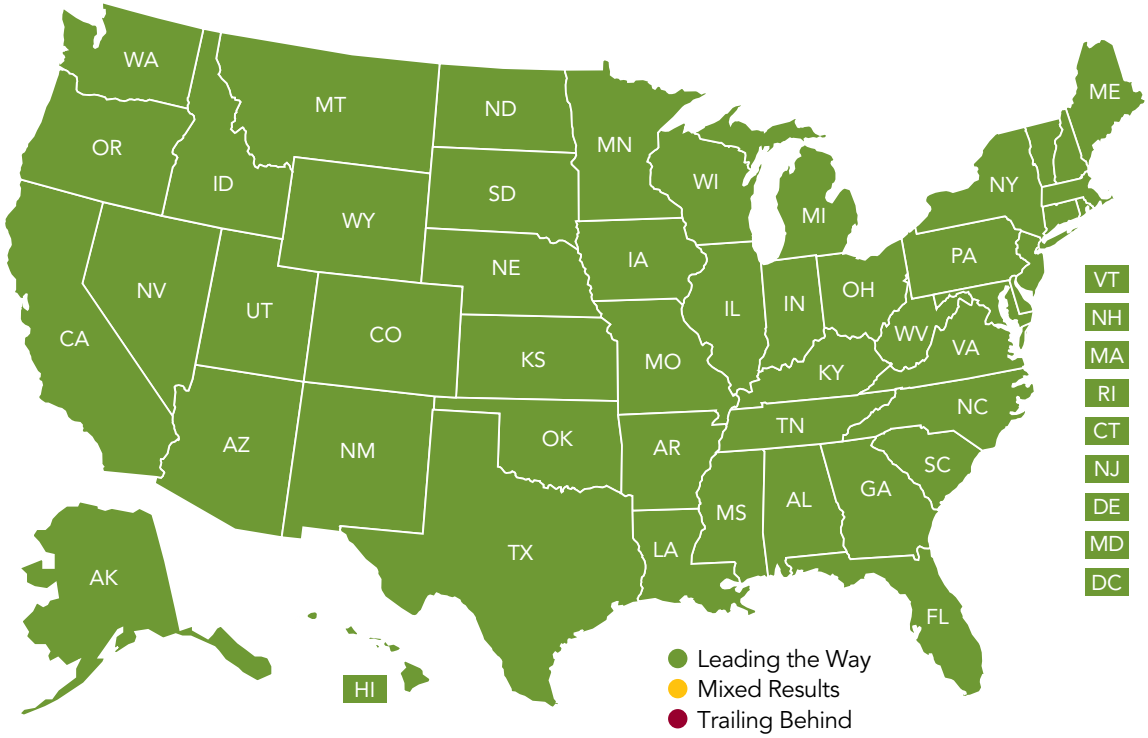
By almost any measure, safety is the area in which states are doing the best job of measuring performance and responding to results (see Exhibit 7). Every state and Washington, DC, has goals and compiles data on core performance measures such as fatalities and crashes. In addition, they all have established and publicly report targets. For example, Kentucky has set a target of lowering annual transportation fatalities by 5 percent from 2006–2008 levels by 2010, with an additional 10 percent reduction by 2012.[113]

The following are examples from the research of states' practice and performance:

- **Illinois** has seen a fairly consistent decline in fatalities and in 2009 recorded fewer than 1,000 fatalities for the first time since 1921.[114] The fatality rate has dropped from 2.2 per 100 million vehicle miles traveled

Exhibit 7

Where States Stand: **Safety**



Safety. The ability of the transportation system to allow people and goods to move freely without harm.

SOURCE: Pew Center on the States and the Rockefeller Foundation, 2011.

(VMT) in 1985 to .99 in 2008—a rate far lower than the national average of 1.27 per 100 million VMT.[115] The state attributes the drop to a number of factors, including marketing campaigns designed to encourage seatbelt use, reduce distracted driving and eliminate driving under the influence. The department tracks public awareness of these campaigns, which not only helps target where additional coverage is needed, but also increases awareness by asking citizens about the campaigns.[116]

- **Iowa** has a wealth of measures on transportation fatalities and injuries. The state also tracks data on highway-rail crossing incidents, including the total number and those involving fatalities and injuries. The data show that the number of incidents declined between 2004 and 2008 from 81 to 72 per year, but the number of fatalities and injuries remained constant at 5 and 25, respectively. Crossings with active warning devices generally have a lower percentage of the total incidents—42 percent of the total in 2008.[117]
- In 2003 **Missouri** worked with AASHTO as part of a national effort to reduce preventable highway fatalities. Missouri established a goal of 1,000 or fewer fatalities by 2008. The collection and tracking of data have helped the state target solutions to the specific causes of the majority of fatalities—cars either leaving the road or crossing highway medians. Setting goals, breaking the data out by 10 state regions, reporting monthly figures and comparing the data to past time periods have helped Missouri meet its goal and reduce fatalities from 1,130 to 960 between 2004 and 2008.[118]
- **Oregon** measures the number and rate of crashes in which large trucks were at fault. It focuses on commercial drivers because data show that of the 671 truck at-fault crashes that occurred in 2008, only 35 resulted from mechanical problems. Oregon has instituted more frequent inspections, safety compliance reviews and removal of drivers from service in the event of violations. 2008 data show mixed progress: The rate of large truck at-fault crashes increased slightly from .37 to .38 per million vehicle miles traveled (VMT). On the positive side, truck crashes resulted in 4.4 percent fewer injuries and 34.6 percent fewer deaths.[119]

GOAL 2: **JOBS AND COMMERCE**

How well the transportation system facilitates or supports business development and employment.

A growing number of policy makers acknowledge the critical role that transportation systems play in furthering—or constraining—a state's economy. They are not alone. Business leaders also see the link between transportation investments and commerce.

In a 2009 survey of site selection consultants conducted by Area Development magazine, which covers corporate site selection and relocation, the number-one factor for corporate location decisions was highway access, beating out labor costs.[120] According to an analysis by Cambridge Systematics, transportation costs account for 3 to 9 cents of each dollar of output in a number of key industries including agriculture, construction, motor vehicles and wholesale trade.[121]

Businesses and individuals can trade with each other more easily if the roads and railways linking them are well developed. Just a few months ago, North Dakota Governor Jack Dalrymple (R) pointed to expansion of the state's rail transportation as a primary factor behind the doubling of its oil production from 230,000 barrels of oil per day in 2007 to nearly 460,000 barrels in 2010. "This obviously is a critical element in expanding the job opportunities in the energy industry," he said in his state of the state address.[122]

The goal of being able to move goods and people more efficiently led the Minnesota Chamber of Commerce to support an increase in the gas tax several years ago. "One of the primary reasons the chamber got involved is our members said we can't move our stuff. We're spending more time stuck in traffic," says David Olson, the chamber's president. The decision to support a tax increase "surprised a lot of people," he says, but "to us, it made more sense to improve the infrastructure and pay a little more."[123]

With all this in mind, it might seem a good idea for states to measure the results of transportation spending on jobs and commerce. But that is still a relative rarity—and not a simple task. B. Starr McMullen is an Oregon State University economics professor who conducted a state-by-state assessment of transportation performance measurements for the Oregon Department of Transportation, with a particular focus on freight. "I didn't see a lot on performance measures that were aimed at economic development," she says. "They talked about the issue broadly as a goal but when it comes to actually

selecting projects a lot of the things they measure are not really relevant."[124]

Part of the difficulty is that while there is a long history of federal-state coordination in the area of safety—helping drive better performance measurement and results—that is not the case in the area of jobs and commerce. Another challenge is the complex relationship between a state's transportation system and its economic growth. "Economic impact is assessed mainly by [construction] job creation as there are no good tools for measuring economic results from transportation projects and an environmental impact standard measure is just being developed," says Connecticut State Representative Diana Urban (D).[125]

"Simply assuming that any transportation investment will have positive stimulative effects and will produce long-term gains for the economy is not a sound basis for investment," the Bipartisan Policy Center noted in a recent report. "We need to do a better job of systematically evaluating alternative investments … to better distinguish among their different outcomes and … improve the returns to public investment in an era of unprecedented budget pressures and increasingly constrained government resources."[126]

Still, working with outside experts, a number of states are beginning to develop more sophisticated measures in tracking how transportation policy influences commerce. State development decisions around station stops for Maryland's light rail, for instance, have been made in part based on measures related to commerce (see "Spotlight on Maryland"), and Missouri has conducted economic modeling that would allow it to predict the benefits transportation spending may have on commerce.

Where the States Stand: **Jobs and Commerce**

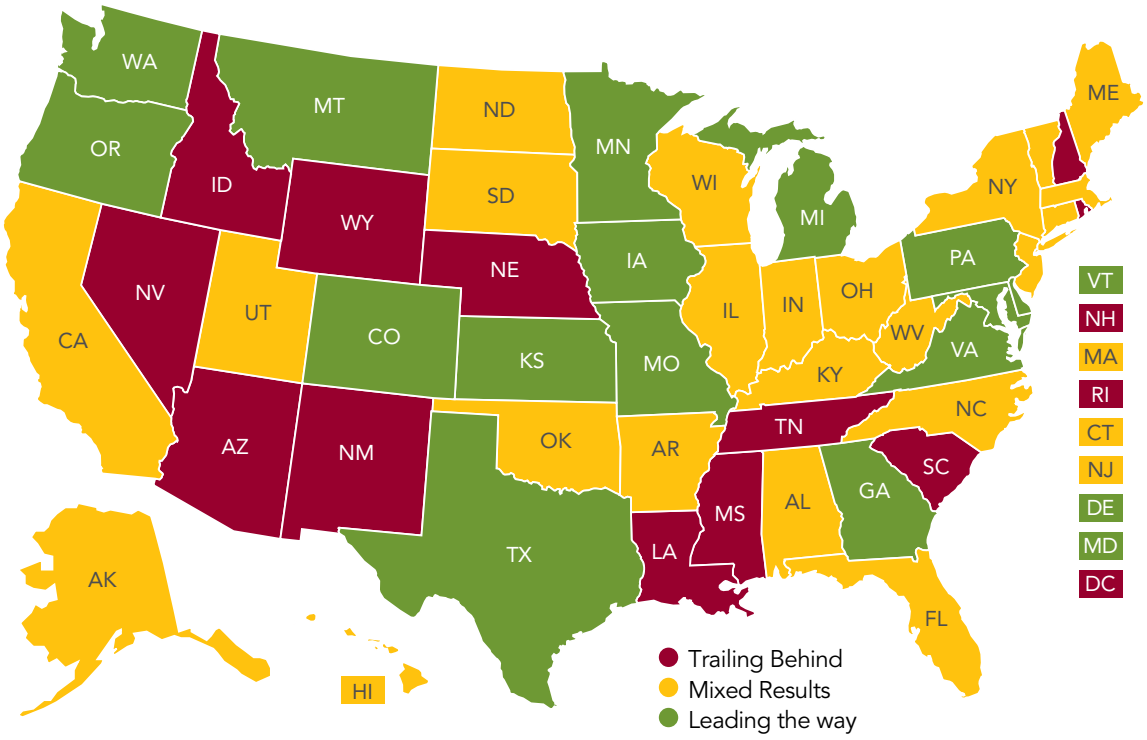
- **16 states are leading the way**
- **22 states have mixed results**
- **12 states and Washington, DC, trail behind**

Jobs and commerce is one of the two areas in which the largest number of states and Washington, DC, are trailing behind (see Exhibit 8; the other area is environmental stewardship). Some states have begun to develop methods to connect transportation dollars more closely with economic outcomes, but many are struggling to make those linkages.

States more commonly focus on measures connected to freight shipping by truck or rail, with some disaggregation of the data into the type of goods, mode of transportation, point of destination and point of origin. The states with mixed results in this area have performance measures but do not provide timely data, do not have targets or explain performance issues, and do not put information in context through comparisons with other states or across time. Of those states trailing

Exhibit 8

Where States Stand: **Jobs and Commerce**



Jobs and commerce. How well the transportation system facilitates or supports business development and employment.

SOURCE: Pew Center on the States and the Rockefeller Foundation, 2011.

behind, nine states and Washington, DC, had goals but no performance indicators or data to measure progress.

The following are examples from the research of states' practice and performance:

Michigan (● leading the way) uses an analytical tool to compare estimates of the economic benefits of transportation spending over time, including jobs created by industry, gross state product, personal income and personal travel time savings.[127] In 2007, Michigan's transportation department used the tool to compare the economic impact of four different strategies for transportation investments. The state's existing funding approach focused on preservation and limited new capacity projects, while the alternative investment strategies targeted reducing congestion and delay. Officials found that three of the four alternatives generated larger estimated economic impacts compared to the existing investment strategy.

In **Missouri (● leading the way)**, the transportation department uses tools developed by the state's Department of Economic Development and the U.S. Department of Commerce's Bureau of Economic Analysis (BEA) to develop detailed estimates on the economic return the state can expect from transportation investments. This model helps Missouri project the number of jobs that may be generated by its proposed transportation infrastructure improvements as well as an estimated return on investment. The state also uses a separate model, developed by the BEA, to estimate job creation from transportation investment by specific industry. Combined with more traditional measures of transportation outcomes in the area of commerce, such as freight tonnage, this set of analytical tools gives Missouri a broad base of data with which to inform decisions about transportation investments.[128]

In **North Dakota (● mixed results)**, to ensure that the state's transportation system "supports economic diversity, growth, and competitiveness," transportation officials track freight movements within the state. Given the importance freight plays in North Dakota, especially in moving agricultural products, the fact that transportation officials have data on freight broken out by commodity, destination and origination can help guide decision making, including setting priorities for rail projects. However, the state does not set targets, compare performance against external benchmarks or present timely information.[129]

A quarter of states and Washington, DC, (● trailing behind), link transportation to jobs and commerce but show limited evidence that they can track progress. For example, Idaho lists "supporting the economy" as one of the state transportation department's three goals but has no performance

SPOTLIGHT ON MARYLAND

In Maryland, the state's inter-city and commuter rail systems offer an example of the complexity of linking transportation planning to economic development. The original decision to build the Baltimore light rail system was not guided by economic impact analyses.[130] But since opening and expanding, the light rail line has become a development and redevelopment magnet. Projects sponsored by the Maryland Department of Transportation (MDOT) along the line are now chosen with the help of studies of both potential economic development impact and return on investment to the state.

The basic formula for deciding which projects to pursue is straightforward enough: First and foremost, projects have to be within a half-mile of a transit or rail station. After that, priority goes to projects where the state owns developable property and the local government is supportive. For example, a major redevelopment project in south Baltimore, called "Westport," rose to the top of MDOT's development list for three reasons, according to Chris Patusky, who heads MDOT's Office of Real Estate. "It was a big Baltimore city priority, it had great transit-oriented development potential, as well as the potential to have big economic impacts," he says.[131] Based on an analysis by the Baltimore City Department of Transportation, the initial phase of redevelopment would create 4,000 permanent jobs and 1,700 temporary construction jobs, and generate $1.8 billion in economic activity.[132]

Originally real estate development was not considered a "transportation purpose" under MDOT's authorizing statute. In 2008, however, Governor O'Malley asked for and got legislation explicitly stating that transit-oriented development represents a "transportation purpose."

MDOT has two other advantages when it comes to pursuing its own economic development and transit-oriented development projects. First, the state has strong eminent domain powers when it comes to acquiring property for roads. Maryland has acquired a significant amount of property over the years, and its leftover excess parcels can now be used for transit-oriented development.[133] Second, MDOT has what its staff consider substantial resources, particularly given states' tight budgets: a $9 billion, five-year capital budget funded by the state gas tax, car title fees and a portion of the state's corporate income tax to use for projects across all transportation modes.[134]

measures or outcome data tracking whether the state is making progress toward this goal.[135] Rhode Island has a similar stated goal for using transportation investments to support economic activity: "Support a vigorous economy by facilitating the multi-modal movement of freight and passengers within Rhode Island and the northeast region."[136] But the goal is not linked to any performance indicators or outcome data, or to the kind of data breakouts, performance targets or comparative information that has Rhode Island leading the way in areas such as access and environmental stewardship.

GOAL 3: **MOBILITY**

The efficient movement of people between destinations by automobile, pedestrian, bicycle and transit modes.

When traffic slows—sometimes to a complete halt—taxpayers pay the bill in a variety of ways. Every hour stuck in a traffic jam is one hour less most drivers can spend on more productive efforts. Extra travel time spent by commercial vehicles, especially trucks, translates into higher prices for goods and services. Communities known for heavy traffic take a blow to economic development efforts. And when highways turn into parking lots, greenhouse gases and other pollutants continue to pour into the air.

There has been a tripling in the amount of congested travel in the United States in a little more than 20 years, according to a 2008 Brookings Institution paper. "The average American in metropolitan areas wastes 26 gallons of fuel each year due to congestion. This may not seem like much, but aggregated it means nearly 2.9 billion gallons each year is wasted—nearly one-fifth of the total equivalent of oil imported from the Persian Gulf [in 2007]," the paper noted, citing 2008 data from the Energy Information Administration.[137]

One strategy to increase mobility is to offer viable alternatives to automobiles for a greater portion of the population. Some areas have turned to rail and transit as a way of reducing congestion. The federal government requires that all metropolitan regions with more than 200,000 people identify the causes of congestion, measure multimodal transportation system performance, assess alternatives and evaluate the effectiveness of actions taken to implement plans.[138]

But investments in transit systems are sometimes contested by supporters of other kinds of expenditures, such as highways. What is more, the twin questions of access and mobility can make mass transit especially challenging in areas that are sparsely populated or whose residents are geographically dispersed. So some states must find other ways to increase mobility.

One of the most prominent comparative measures of congestion was developed by the Texas Transportation Institute, which started using data from the Highway Performance Monitoring System to estimate congestion in cities back in the late 1980s. For many years, the institute has used computer models to develop travel time information for large cities, although these estimates often have been criticized for inadequately measuring urban congestion problems.[139] The December 2010 version of the report makes more use of "real time data," actual recordings of travel speed collected by a private

company, combined with data on traffic volume that states produce.[140]

Starting in the 1990s on urban freeways, fixed-place sensors began to provide real-time travel information, but generally only for major roads. Since then, a number of private companies have begun assembling traffic information from geographic positioning systems in vehicles. They then sell or trade the data back to state governments (as well as to individual citizens).[141]

Both federal and state governments are working to develop new ways to use this kind of information. For example, the Research and Innovative Technology Administration of the U.S. DOT is exploring the potential of wireless communications that would give drivers better real-time briefings about problems they may encounter further down the road. This information lets travelers know when it might be beneficial to switch to transit or choose another route.[142] As such technology becomes more prevalent, it is likely to spread from major thoroughfares to less-traveled roads. (See "Spotlight on Washington.")

SPOTLIGHT ON WASHINGTON

Washington State has made a specialty of using performance data to track accidents and accident response, not only as a means of improving safety but also to cut down on the time wasted and the mobility lost when an accident clogs the highway system.

In the past, because of a lack of communication between the State Patrol and the Washington State Department of Transportation (WSDOT), a state trooper would arrive at an accident scene, confirm the need for a tow truck, and then wait for the truck to arrive. Realizing crucial time was being lost, Washington implemented the Instant Tow program to dispatch a tow truck immediately when citizen reporting or WSDOT's closed circuit cameras identify a traffic incident, saving an average of 15 minutes in dispatch time. According to Vince Fairhurst, WSDOT's incident response manager, the program is used in three of eight State Patrol districts, deployed by the WSDOT in high traffic-volume areas. "It works because it allows and establishes an extremely organized cooperative effort between the patrol and the [WS]DOT," explains Fairhurst. In the four years since its inception, the program has been used in more than 1,600 incidents, saving the state hundreds of hours of traffic congestion.[143]

According to WSDOT estimates, each instant tow deployment has saved taxpayers thousands of dollars, varying with location, time and traffic conditions.[144] That is not only big money saved; it also demonstrates the state's attempt to measure performance in terms that are meaningful to citizens as well as businesses, such as freight shippers.

Washington tries to get as much mobility as possible out of existing roads with approaches that are less costly than rebuilding existing or creating new infrastructure. For example, a recent active traffic management initiative conveys real-time traffic speed, accident and lane closure information to drivers. That, in turn, helps drivers avoid collisions and keeps traffic moving steadily, safely and efficiently.[145] But even with savvy traffic management, new infrastructure sometimes is necessary, which is why Washington included mobility projects among those funded by gas tax increases in 2003 and 2005. The state has completed 70 of those congestion relief projects, and has been measuring their mobility impact to evaluate its investment. For example, one widening project improved morning rush hour travel times by 16 minutes between 2007 and 2009.[146]

Where the States Stand: **Mobility**

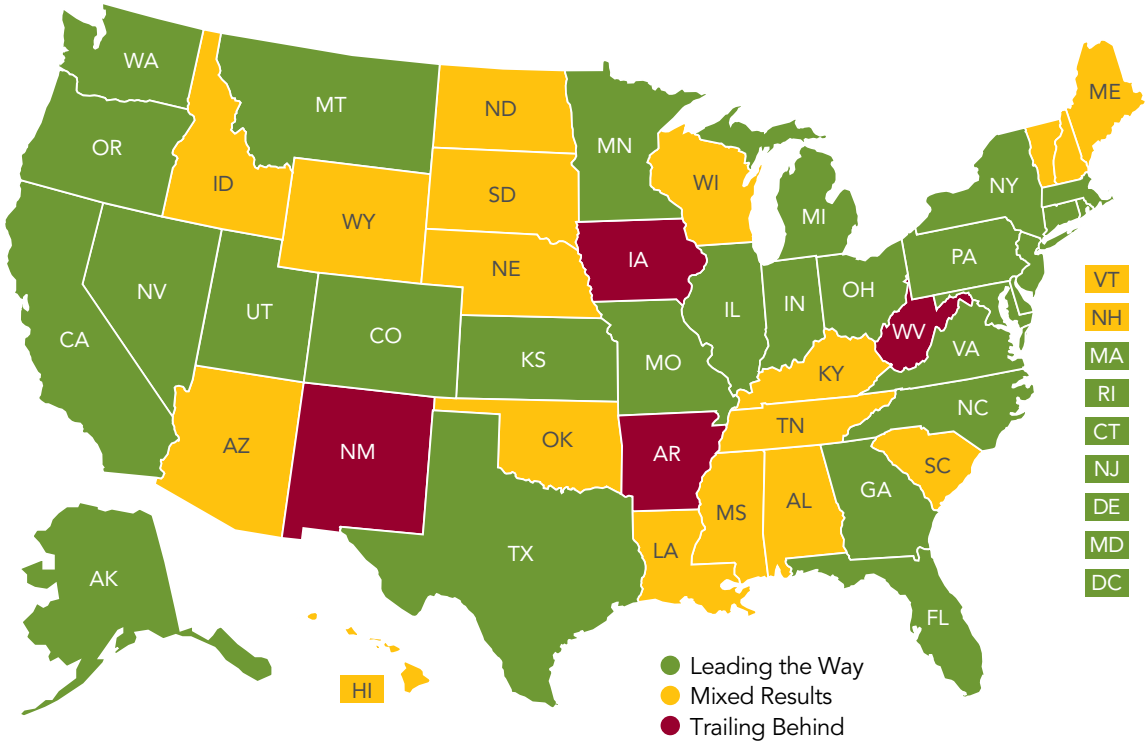
- **28 states and Washington, DC, are leading the way**
- **18 states have mixed results**
- **Four states trail behind**

In general states use an array of performance measures to assess the ease in which travelers move between destinations (see Exhibit 9). Mobility measures include travel times on key roads, travel speeds, time spent in traffic during peak and off-peak periods, and travel delays on highways and transit. States also collect data on how well they manage accidents and other travel incidents that affect traffic flow.

About half the states have reported on transit mobility indicators, and the majority of these measures focus on timeliness of transit vehicles. Some top states in mobility, including Florida, Minnesota, Missouri, Texas, Virginia and Washington, stand out for having a good range of measures. The states deemed as having

Exhibit 9

Where States Stand: **Mobility**



Mobility. The efficient movement of people between destinations by automobile, pedestrian, bicycle and transit modes.

SOURCE: Pew Center on the States and the Rockefeller Foundation, 2011.

mixed results or trailing behind typically lack timely data or specific targets, fail to divide the data geographically or by mode to better pinpoint problem areas, and lack explanations to clarify or put data into context. Understanding the most congested areas allows states to better pinpoint investments in improvements to existing infrastructure or new construction.

The following are examples from the research of states' practice and performance:

Minnesota (● leading the way) measures performance on a number of mobility indicators that can track progress toward two state policy goals identified in its 2009–2028 Statewide Transportation Policy Plan. The first goal is to accommodate changing travel needs and use patterns based on demographic and economic shifts. The second goal is to reduce congestion and enhance mobility, especially in the Twin Cities, because 9 percent of the highways in this area carry about 50 percent of roadway travel in the state. Minnesota hopes to optimize the existing transportation system, improving coordination among jurisdictions and modes and making strategic choices between spending on highways and transit. Minnesota also provides current data and clear explanations of the indicators, such as the duration and extent of congestion and incident clearing times. The data are contextualized by comparing them to past time periods.[147]

In **Texas (● leading the way)**, an online dashboard, called TxDOT Tracker, presents and explains data on a number of core mobility measures, including a statewide congestion index, large and small urban area travel delays and costs of congestion delays. In a separate document, the state presents indicators on Amtrak delays and on-time performance.[148]

Iowa (● trailing behind) identifies core performance measures, but fails to present data for them. Arkansas, New Mexico and West Virginia have no measures.[149]

GOAL 4: **ACCESS**

The ability of the transportation system to connect people to desired goods, services, activities and destinations for both work and leisure, and to meet the transportation needs of different populations.

Access in transportation systems is critical not only to Americans' daily lives, but also to the nation's economy. For businesses, better access can mean a larger customer base, broader reach to new markets and more efficient transactions with other providers as the 2006 *Eddington Transportation Study,* Britain's seminal analysis of that country's transportation system, pointed out.[150]

Employers have access to a much smaller pool of labor and customers when individuals have limited or no ability to reach them. Still, few states have developed measures that focus on how transportation options affect the ability of workers to get to jobs. An exception has been Georgia. The state's 2010 Statewide Strategic Transportation Plan cites the share of workers who reach their place of work by car or transit in 45 minutes or less as an outcome measure to be considered in determining transportation investment priorities.[151]

The gap between where people live and where available jobs are is a particularly high barrier for low-income individuals, says Robert Puentes, a senior fellow with Brookings' Metropolitan Policy Program.[152] Easier access to distant locations through well-designed transportation networks can lead to better employment outcomes for the working poor when it enables them to travel to places where job growth is stronger. Access also allows employers in emerging economic regions to attract a wider number of qualified applicants, the Eddington report found.[153]

Although the most urgent transportation problem for the poor is getting them from inner cities to outlying areas, this phenomenon creates a double whammy and places greater pressure on state transportation systems when there is a need to help the spread-out poor get access to jobs and economic activities in metropolitan areas, says Puentes.[154]

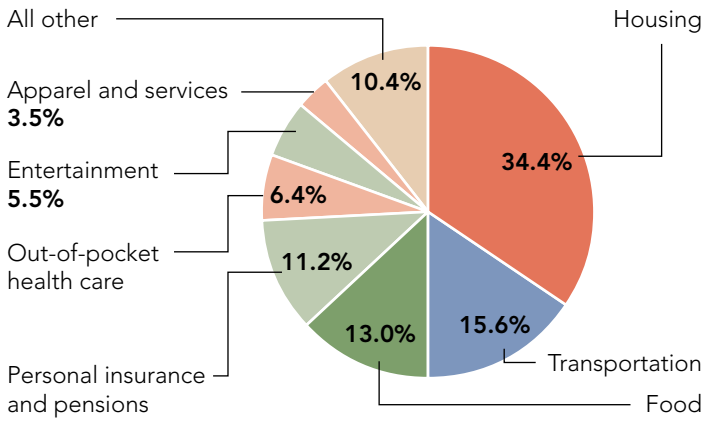
Even when workers are able to get to their jobs, the costs of long commutes add up. A Brookings analysis found that the working poor spend more than 6 percent of income on commuting costs, compared with workers as a whole who spend almost 4 percent (see Exhibit 10).[155]

The working poor are joined by the aged and disabled to form a troika of groups who have particularly intractable problems with access. There is broad recognition embodied in the Americans with Disabilities Act that people with disabilities need to have transportation access to live complete lives. Still, the disabled who have limited access to cars can

Exhibit 10

Transportation Costs Affect Access

In 2009, transportation ranked as the second-largest household expenditure, trailing only housing and ahead of food and insurance.



SOURCE: Pew Center on the States and the Rockefeller Foundation, 2011, based on the Bureau of Labor Statistics' "Consumer Expenditure Survey," October 5, 2010.

easily find themselves with no good way to get their medical and social needs served. The aged face similar issues; many lose their capacity to drive as declining eyesight or other physical infirmities pull them out from behind the wheel.

Traditional mass transit systems—such as subways or trains—are a solution for some, but do not work well for people who cannot get from their homes to central locations or from central locations to their final destinations. Solving such access problems is invariably expensive and has proven to be very difficult for transit agencies across the country.[156]

Although most state officials have little direct control over mass transit, whether and to what degree these systems work are of great consequence to them. The mother lode of information about mass transit is the National Transit Database, maintained by the Federal Transit Administration.[157] It is a rich repository of data at the national level. Among other things, the database provides the cost per boarding for fixed route transit service. But "it tends not to be mined very effectively into larger policy discussions. It could be and should be," according to Douglas MacDonald, former secretary of transportation for the State of Washington.[158]

What stops states from putting more weight on this piece of the transportation puzzle? The biggest obstacle right now may be that making policy decisions based on access data requires a deeper understanding of the way to best gather and analyze good information. What is more, the issue is riddled with political questions. For example, advocates of "smart growth" argue that some transportation problems can be solved by emphasizing the utility of densely populated urban areas where work, home and leisure activities are close together. This leaves states with the knotty problem of determining the benefits of building roads that make it easier to reach distant areas for jobs or social activities.

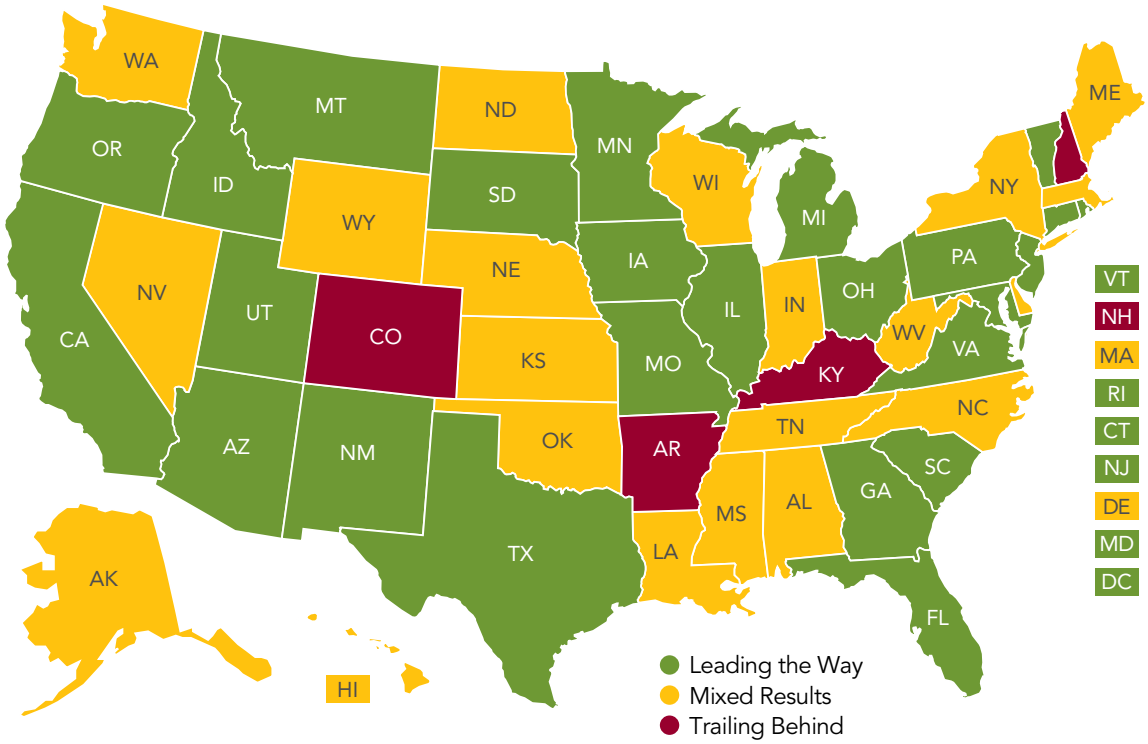
Where the States Stand: **Access**

- **25 states and Washington, DC, are leading the way**
- **21 states have mixed results**
- **Four states trail behind**

The Pew-Rockefeller study identified 25 states and the District of Columbia as leading the way in access (see Exhibit 11). One of these is Minnesota, which has four core performance measures, including the number of bus service hours required to meet transit needs, the number of counties with countywide public transit service and the percentage of regional trade centers with scheduled intercity bus service.[159] Other leading the way states, such as Oregon, focus on public transportation for the elderly and disabled.[160] But even among these top-performing states, better measures are needed; as noted, most states lack measures that focus on how transportation options affect workers' ability to reach jobs.

Exhibit 11

Where States Stand: **Access**



Access. The ability of the transportation system to connect people to desired goods, services, activities and destinations for both work and leisure, and to meet the transportation needs of different populations.

SOURCE: Pew Center on the States and the Rockefeller Foundation, 2011.

Most of the remaining states show mixed results. They tend to rely on a single indicator—transit ridership—to measure progress in connecting people to places they want to go. But simple measures of transit ridership did not get states full credit in this study because they do not give states enough information to make fully informed decisions about access. States needed to go above and beyond that with more outcome-focused indicators to get a top rating. Although they lack core performance measures, some states provide baseline data, often with supplementary information such as disaggregated information, trend analysis and explanations for changes in performance.

The following are examples from the research of states' practice and performance:

Minnesota (● leading the way) recognizes the importance of an efficient, multimodal transportation system that "connects people with jobs and services; distributors with manufacturers, producers, and exporters; shoppers with retailers; and tourists with recreational opportunities."[161] The state wants to enhance the movement of people and freight between regional trade centers.[162] Minnesota tracks data on the percentage of the most commercially active regional trade centers with scheduled intercity bus service. In 2009, such service was available in just 70 percent of these commercial areas; the state has set a target of 100 percent coverage.

New Mexico (● leading the way) estimates both demand (amount of travel expected given the services available) and the unserved need (nondiscretionary trips) for public transit in rural areas in the state, focusing on elderly, disabled and low-income individuals. The state then uses performance measures to help prioritize investments and serve residents more efficiently in rural areas.[163]

Louisiana (● mixed results) uses a measure aimed at helping ensure all citizens have the ability to use public transportation: the number of participating parishes with low-cost transportation options. The state has established the goal of increasing the number of participating parishes from 37 as of December 1, 2009, to 50 (out of a total of 64) by 2016. But Louisiana does not present additional performance indicators, nor does it set short-range targets or compare performance over time or against other states.[164]

Arkansas, Colorado and New Hampshire (● trailing behind) do not have any measures in this area. **Kentucky (● trailing behind)** has a goal to "enhance rail transportation safety and convenience to ensure mobility and access," but presents data only on the number of public transit passengers, without other accompanying information.[165]

GOAL 5: ENVIRONMENTAL STEWARDSHIP

The effect of the transportation system on energy use and the natural environment.

In early 2010, Indiana Governor Mitch Daniels (R) got a major boost to his goal of turning Indiana into "the electric vehicle state." THINK, a Norwegian-based manufacturer of electric cars, announced that Elkhart, Indiana, would become the new U.S. production center for the company's two-seat, battery-electric-powered vehicle.[166] Then, at a mid-December press conference, Governor Daniels took delivery of 15 THINK cars, all built at the Elkhart facility to be used in the state government's fleet. "Nearly four years ago we set the goal of establishing our state as the 'Silicon Valley' for advanced vehicle manufacturing and … now we're seeing the fruits of this initiative," Governor Daniels said at the event. "We are committed to lead in state fleet electrification and call upon other states to join in and help get this vitally important industry off the ground to make electric cars available for everyone."[167]

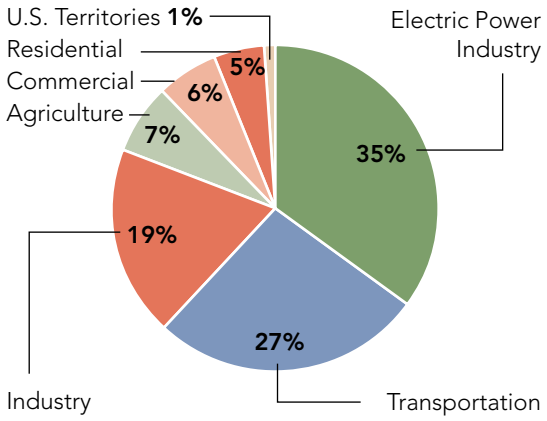
The story illustrates the efforts that a growing number of states are making to link transportation to economic growth and environmental stewardship. It is not an easy task. With some lawmakers motivated by a desire to curtail greenhouse-gas emissions and improve air quality and others interested mostly in creating jobs or lowering energy costs, such efforts often involve bringing together coalitions of parties motivated by substantially different objectives.[168]

Regardless, states are moving toward a fuller exploration of transportation policies and practices that can advance economic development and help protect the environment, such as improving fuel efficiency, reducing congestion and vehicle miles traveled, lowering the

Exhibit 12

Transportation's Effect on the Environment

Transportation is the second-largest contributor to greenhouse gas emissions among major economic sectors. Transportation-related emissions grew 22 percent between 1990 and 2008, the second-fastest rate.



SOURCE: Pew Center on the States and the Rockefeller Foundation, 2011, based on data from the Environmental Protection Agency, Inventory of Greenhouse Gas Emissions and Sinks: 1990-2008, 2009.

carbon content of the fuel burned and increasing the availability of mass transit (see Exhibit 12).

But often there is an ad-hoc quality to the effort. Despite Governor Daniels' pride in luring the THINK project, the Pew-Rockefeller study shows that Indiana trails behind other states in having systematic goals, performance measures and data to assess how its transportation system affects environmental stewardship.

Indiana is far from alone. In the recent GAO survey, only nine states indicated they were making "great or very great" use of environmental measures—specifically, transportation-related emissions or energy consumption—in their statewide planning.[169] Federal law requires all states to assess the potential environmental harm of proposed transportation projects that involve federal monies, but there are no firm guidelines dealing with how they meet those requirements, says Lori Sundstrom, former chief of staff for the Oregon Department of Transportation (ODOT) and now a senior program officer at the National Academy of Sciences.[170]

In contrast, California exemplifies how a state can tie transportation policy and planning to environmental goals. In 2008, California passed the Sustainable Communities and Climate Protection Act, a law requiring the state environmental protection agency to set regional greenhouse gas emission reduction targets for passenger vehicles, and then for metropolitan planning organizations in the state to develop strategies to meet those targets. California prioritizes transportation funding based on regional growth plans that show how reductions will be achieved. The targets were finalized in September 2010.[171] (See "Spotlight on Oregon.")

Where the States Stand: **Environmental Stewardship**

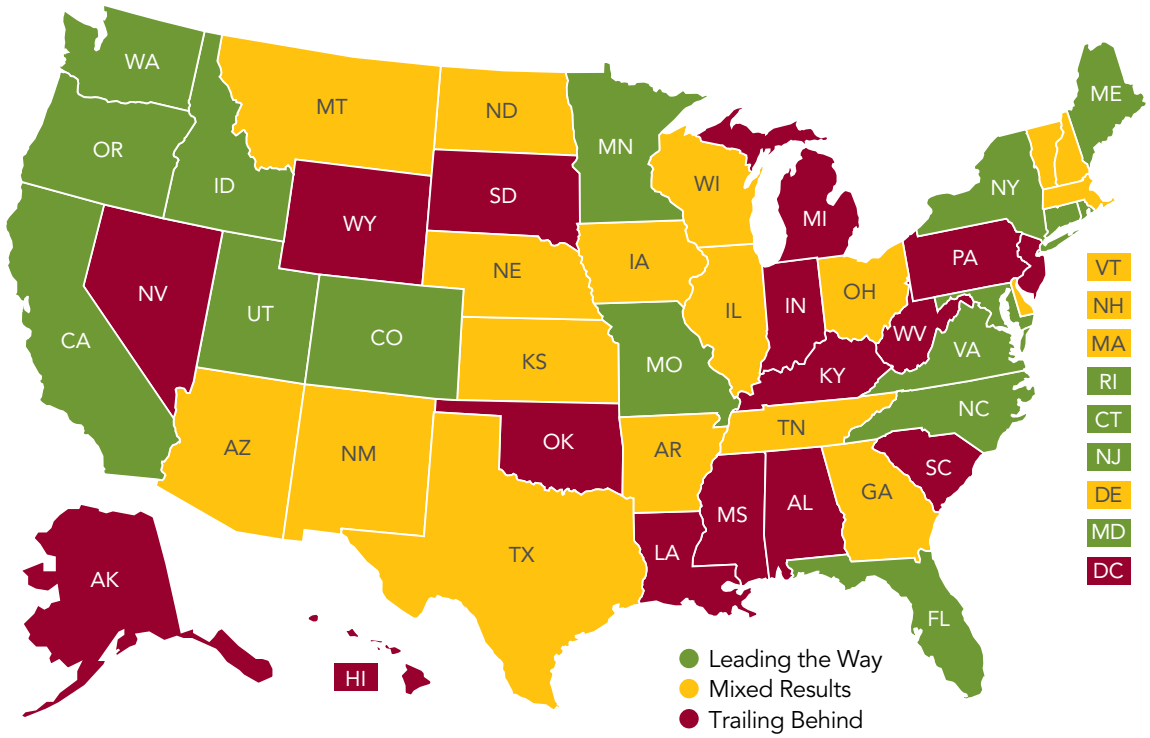
- **16 states are leading the way**
- **18 states have mixed results**
- **16 states and Washington, DC, trail behind**

About two-thirds of the states have mixed results or trail behind in the environmental stewardship area, according to the Pew-Rockefeller research. But this is a fast-moving field. A number of states are taking substantial steps to tie transportation policy and planning effectively to environmental goals, but those efforts have not yet shown up in the form of documented performance measures (see Exhibit 13).

Most of the states have goals and core performance measures but only 30 present data for them, and only 13 of those states have timely data from 2009 or 2010. Twenty-three states and Washington, DC, do not offer explanations for changes in performance, and 17 states and Washington, DC, do not compare their performance with other states or their

Exhibit 13

Where States Stand: **Environmental Stewardship**



Environmental stewardship. The effect of the transportation system on energy use and the natural environment.

SOURCE: Pew Center on the States and the Rockefeller Foundation, 2011.

own past performance to see if targets were achieved.

The following are examples from the research of states' practice and performance:

Maryland (● leading the way) stands out for its use of data to understand and measure the impact of transportation decisions on the environment. For example, the state presents information on its success in reducing vehicle miles traveled through park-and-ride usage, measures reductions in energy consumption by tracking the use of "green" transit vehicles (hybrid or alternative fuel), and presents annual data on acres of wetlands or wildlife habitat created, restored or improved. Maryland also tracks reductions in transportation-related emissions overall, including greenhouse gas emissions, some broken down by region and by type of emission, and sets short- and long-term targets.[172]

New York (● leading the way) emphasizes the need to reduce its reliance on petroleum and significantly reduce greenhouse gas emissions by 2050. New York tracks a range of related indicators, including vehicle miles traveled daily, organized by purpose of trip and per capita by urbanized areas, as well as changes in the type of vehicles that travel on New York highways and per capita motor fuel consumption. For some of this information, New York compares its figures with other states and with prior year data.[173]

Tennessee (● mixed results) considers transportation's impact on the environment. It tracks data on greenhouse gas emissions by sector, including transportation, though the data are from 2005.[174] The state also tracks a more narrow measure on the number of publicly accessible biofuel refueling pumps in its Biofuel Green Island Corridor System, a network of refueling stations along Tennessee's interstate system and major highways.[175]

Seven states—**Alaska, Louisiana, Mississippi, Nevada, New Jersey, Oklahoma and West Virginia—and Washington, DC, (● trailing behind)** have goals in this area. For example, Mississippi has a goal to "ensure that transportation system development is sensitive to human and natural environment concerns" and the District of Columbia plans to "[i]ncrease non-vehicular transportation mode share to meet the mobility and economic development needs of the District, as well as reduce the use of fossil fuel and related climate change effects."[176] But these states lack performance measures and information about their progress toward their goals.

SPOTLIGHT ON OREGON

Four years ago, Oregon state lawmakers set a clear environmental goal: Reduce greenhouse gas emissions to 10 percent below 1990 levels by 2020.[177] But they did not have a good way to analyze how transportation policy and investment decisions would impact emissions. A 2008 meeting of ODOT and the leaders of a newly created statewide commission to combat global warming led to a solution.[178] ODOT created software that can analyze interactions among various policy choices. The federal government recently asked ODOT to make the tool available to all states as a model, and Florida officials have begun testing it to see if it will meet their state's needs.[179]

Oregon has a long history of using data to reduce air emissions, mitigate environmental damage from new construction and road maintenance, and limit urban sprawl.[180] In 1973, the state legislature enacted Senate Bill 100, which led to rules that require every local and regional government to meet 19 development planning goals, including improving the economy and preserving and conserving natural resources.[181]

The law requires that every local and regional government create a so-called urban growth boundary, which limits development. Part of the rationale is that if the population is densely concentrated, people will not have to drive long distances routinely, and reductions in miles driven will reduce greenhouse gas emissions.[182]

Under the law's mandate, Oregon's largest metropolitan areas were required to reduce vehicle miles traveled by 10 percent over the 20 years after the adoption of a regional plan. As a result, policies particularly in Portland encouraged the construction of new buildings near transit stops, limited parking spaces and led to the redevelopment of land within urban growth boundaries rather than fostering sprawl. The number of miles that Portland residents drive each year is almost 20 percent lower than the U.S. national average (although that comparison is not restricted solely to cities of similar size).[183]

The state is in the midst of another exercise, also mandated by the legislature, which requires transportation planners to use so-called "least-cost" planning. Officials must weigh all of the implications of a proposed transportation project, not just short-term capital costs. The environmental damage that would

SPOTLIGHT ON OREGON (CONTINUED)

result also must be considered, not only when it can be easily monetized or quantified but also when it would cause serious consequences such as the extinction of a species or a major increase in greenhouse gas emissions.

Oregon is not the only state to use this type of analysis. But it is distinguished by the fact that in most areas of the state, transportation planners are required to compare the potential cumulative costs with the potential benefits, says Marjorie Lifsey Bradway, the ODOT sustainability program manager. Bradway's position, created in 2004, is the first state transportation post in the nation devoted solely to sustainability.[184]

GOAL 6: INFRASTRUCTURE PRESERVATION

The condition of the transportation system's assets.

There is good news and bad news when it comes to the preservation of transportation infrastructure in the United States.

The majority of public roads nationwide are in very good, good or fair condition. But nearly a quarter of the nation's major metropolitan roads—interstates, freeways and other principal arterial routes—"have pavements that are in substandard condition and provide an unacceptably tough ride to motorists," according to a September 2010 study by the nonprofit group TRIP. Not only is this a consideration in terms of safety, TRIP says, but the average U.S. urban driver spends more than $400 per year in vehicle operating costs as a result of driving on roads that are in poor condition—above and beyond expenses he or she would ordinarily accumulate.[185] Driving on deteriorated roads boosts drivers' costs by increasing the frequency of needed maintenance and requiring additional fuel.

From states' fiscal point of view, delaying necessary maintenance winds up costing more in the long run.[186] And yet, Pew's 2008 Government Performance Project found that half the states were far behind in funding their maintenance of roads and bridges. The deferred maintenance for New Jersey's transportation system was $13 billion, for example. Massachusetts estimated that it would need $15 billion to $19 billion over the next 20 years just to maintain its transportation system (transit as well as roads and bridges) without any enhancements or expansions.[187]

The good news? Along with safety, infrastructure preservation is the area that states know the most about and for which they have the most developed information to make smart decisions. This widespread availability and use of condition measures is due in large part to the requirement that states report condition information about roads and bridges to the Federal Highway Administration.

Some state officials say that the information they collect has helped attract funding. A bridge health index in Kansas has spurred bridge preservation work by clearly establishing targets for the state's bridges—at least 85 percent need to be in good condition and no more than 5 percent in deteriorated condition. Explains Calvin Reed, a Kansas bridge performance, evaluation and program engineer: "In 2008, we developed an in-house program to project the performance of our system with different levels of funding. We were able to determine that we would need approximately $100 million in annual

funding for the bridge preservation program to maintain the performance targets we established." Seeing this kind of information, the legislature funded the program with an annual $85 million investment—not 100 percent of the request, but a significant share given the state's budget crunch.[188]

In Wyoming, a statewide computer system has begun helping with asset management and eventually may aid decision makers in targeting funds to the items and areas of greatest need. The main benefit of the system is that it will gather all the necessary information in a single electronic location. Data that required a phone call and someone else running a report in the past will now be "at our fingertips," says Martin Kidner, the state planning engineer. The system shows areas or sections of roadways and the costs to maintain or reconstruct them.[189] Kidner acknowledges there always will be political pressures on decision makers, but says, "I am not out there to tell you which projects to build, but I will tell you what the implications are. We can give you the information ahead of time."[190] (See "Spotlight on Idaho.")

Where the States Stand: **Infrastructure Preservation**

- **39 states and Washington, DC, are leading the way**
- **11 states have mixed results**
- **No states trail behind**

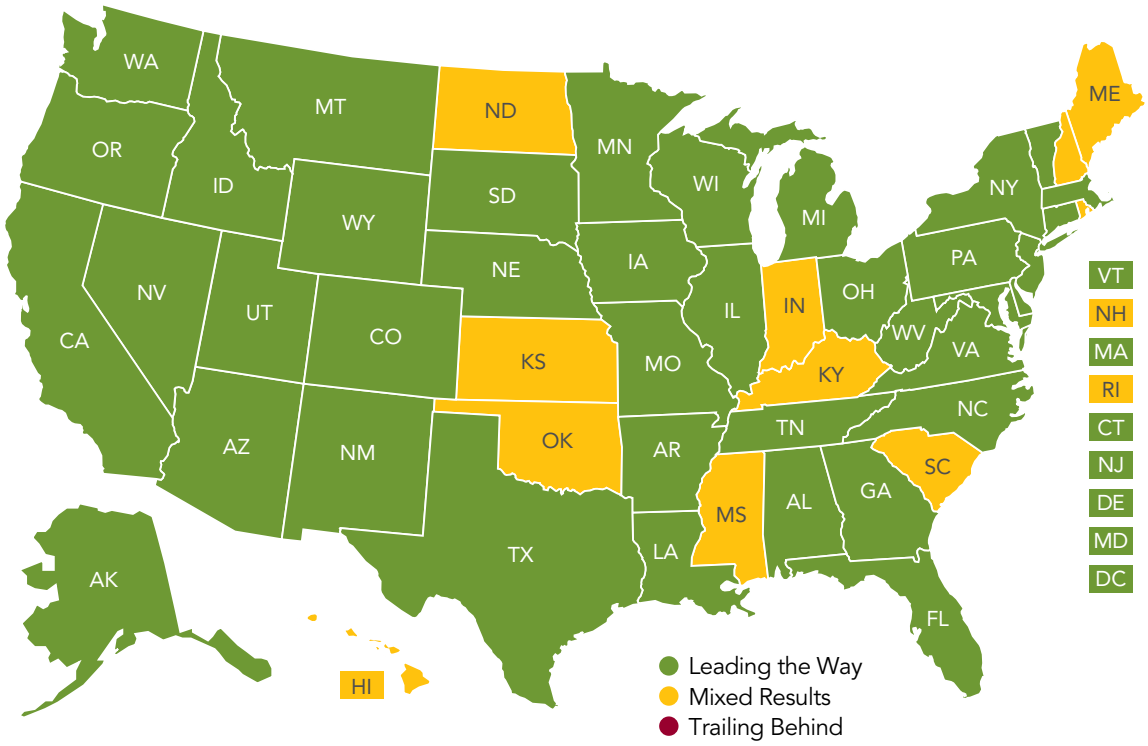
While there is variation in how states measure pavement and bridge conditions, all states and Washington, DC, have good and timely outcome data related to these two facets of infrastructure preservation (see Exhibit 14). States that fell short in the Pew-Rockefeller assessment tended to lack explanations of performance issues, were missing information about customer satisfaction, preservation of transit assets or other key topics, or did not compare their performance with that of other states.

The following are examples from the research of states' practice and performance:

Louisiana (● leading the way) provides timely data on performance indicators for pavement and bridge conditions, offers comparative information on its own prior performance over time, and sets targets for improvement. For road conditions,

Exhibit 14

Where States Stand: **Infrastructure Preservation**



Infrastructure preservation. The condition of the transportation system's assets.

SOURCE: Pew Center on the States and the Rockefeller Foundation, 2011.

Louisiana includes detailed breakouts on the type of road including national interstate, national highway, state highways and regional highways.[191]

Not only does **Virginia (● leading the way)** provide timely data on core indicators of its roads and bridges, it also includes comparative information so that managers, decision makers and citizens can understand where Virginia's results stand in a broader context. For example, in areas related to road and bridge conditions, Virginia provides comparisons to past performance targets and condition assessments. The state also sets clear targets in the area of infrastructure preservation—it aims to have at least 82 percent of its primary roads be in fair or better condition.[192]

Mississippi (● mixed results) provides data on performance indicators for pavement and bridge conditions, but does not offer comparisons to other states or its own performance over time. It also does not include explanations for its performance that might help decision makers better understand what is affecting the results.[193]

SPOTLIGHT ON IDAHO

In 2008, the Idaho Transportation Department (ITD) was facing an annual budget shortfall in excess of $200 million, out of a total state general fund of less than $3 billion.[194] The costs of basic preservation and restoration of the state's highway system were far outpacing departmental funding. Governor C.L. "Butch" Otter (R) and the legislature could not agree on how to solve the challenge. The governor wanted an increase in the state gasoline tax; the legislature would not approve it.[195] Deadlocked, the legislature commissioned its Office of Performance Evaluation to conduct a thorough review of ITD revenues and expenses. "We weren't looking for a smoking gun," says Senator John McGee, chair of the Senate Transportation Committee. "I think the legislature and the public wanted more comfort that the transportation department was spending our dollars as efficiently as possible."[196]

The review found that the department was seriously underfunded—but also found that the state's transportation system was "lacking a cohesive strategic vision and coordinated long-term infrastructure management plan."[197]

SPOTLIGHT ON IDAHO (CONTINUED)

The report lit a fire under state leaders. Governor Otter issued an executive order requiring the ITD to implement the report's recommendations within three years, including establishing a statewide strategic transportation plan with goals and performance measures and publishing an annual accountability report.[198]

Although these efforts are in the early stages, Idaho already is seeing positive movement. The report recommended that the state drop its "worst-first" approach to pavement and bridge preservation and instead adopt a "preservation-first" approach that would save the state six to 10 times the amount spent on maintenance within 10 years.[199] The legislature approved more than $8 million for ITD that provided for new pavement and maintenance management systems, a key finding of the audit.[200] In addition, bridge conditions have been improving. In 2008, only 67 percent of bridges in the state had been declared by the transportation department to be in "good" condition. In 2010, that number climbed to 71 percent.[201] Scott Stokes, ITD's deputy director, describes the transformation as the difference between knowing what was invested in transportation and knowing the results of those investments.[202]

A Transportation Funding Modernization Task Force—also formed in the wake of the audit—recommended in December 2010 that the state find an additional $543 million annually for transportation, with more than half of that going to operations, preservation and restoration needs. The 15-member task force, which included members of the House and Senate, provided a ranked list of two dozen possible revenue enhancements, topped by fuel tax increases and fuel tax inflation indexing.[203]

Given the state's funding constraints, new resources may remain on hold. Still, Stokes thinks the public, legislators and other decision makers now have confidence that greater investments in transportation are increasingly linked to "things they care about, whether it be safety or the condition of bridges."[204]

Policy Options

How can states develop more effective goals, performance measures and data and use that information more consistently to make cost-effective transportation policy and spending choices? Research and interviews with experts in the field have identified some options that appear to have potential.

Improve the information. The most obvious step is to push for better performance measurement information—improving the usefulness of indicators, moving toward a heightened focus on results and ensuring that measures link to concrete goals that reflect a state's larger priorities, such as economic growth. To measure access, for example, transit ridership only goes so far; policy decisions also might require breakdowns of trends in ridership for populations with different needs. A more comprehensive understanding of the link between transportation and commerce may be aided by surveys or focus groups to get input from business leaders on transportation needs. Better tools are particularly needed in the areas of jobs and commerce and environmental stewardship.

The federal government, states and localities can help each other by developing communities of practice, publicizing new approaches to measurement, establishing consistent measures for common benchmarking, and continuing to work on such areas as commerce and access, in which there is disagreement or uncertainty about the best measures to use. AASHTO has developed a number of reports on different approaches to transportation measurement and its website offers examples of what states and localities are doing, as do the websites of several other organizations, such as the Public Performance and Reporting Network at the Rutgers University School of Public Affairs and Administration.[205]

Enact or improve performance measurement legislation. The federal government can motivate—or require—states to strengthen their policies and practices. Congressional deliberations about a new, multiyear highway and transit bill—likely to be considered in 2011—are expected to focus at least in part on transportation's ability to drive America's economic growth, mobility, environmental stewardship and other

key goals. There is momentum from both the executive and legislative branches to include in the legislation an increased emphasis on states' use of performance measurement and data collection to make transportation decisions.

A federal law passed in 2010 also could help. In 1993, when Congress enacted the Government Performance and Results Act (GPRA), it created a variety of requirements for federal agencies. Those included the mandate to establish multiyear strategic plans and annual performance plans and reports. By 2009, some 39 states—many of which were inspired by the federal action—had passed performance measurement legislation of their own.[206] While the details vary, such legislation generally prescribes a consistent use of measurement, benchmarking against goals and evaluation in the states' budget process.

But there is a significant gap between the passage of legislation and the actual use of the data gathered for decision making. "We thought that when performance measurement information was available it would be used, but that wasn't necessarily so," says John Kamensky, senior fellow at the IBM Center for the Business of Government and member of a small group that drafted the original GPRA legislation.[207]

This realization inspired the creation of the GPRA Modernization Act of 2010, passed in December. The new act is targeted at not just having information but putting it to use, and was partly inspired by successful efforts in Maryland and Washington.[208]

Kamensky and others believe the new law can serve as a model for states in which executive and legislative branch leaders wish to connect transportation spending with larger societal goals and track the results achieved. Specifically, the new law emphasizes the value of more frequent updates of measures; better alignment of strategic planning requirements and the presidential term of office; more attention to how agencies will work together on goals and objectives; the introduction of forums designed to discuss and react to issues raised by collected data; and follow-up on whether the targets have been achieved.

Develop an appropriations process that makes better use of data. States need to develop more comprehensive systems that ensure that policy makers are asking for and using solid information in their deliberations about transportation spending.

Only a handful of states have taken steps to develop mechanisms within the appropriations process to consider performance measures along with budget requests. While transportation departments are responsible for selecting potential projects for the states, legislators generally must approve funding requests and operating and capital plans, and in some states governors also have a strong say

in these matters. In addition, lawmakers are responsible for a number of other transportation-related decisions, including policies for safety improvement such as the requirement of seatbelt laws.

In Connecticut, Representative Urban has championed an effort to guide all appropriations—including those for transportation—with timely, relevant data, through the state's Results Based Analysis approach. Report cards from agencies on past performance are embedded in subcommittee budget books, along with a set of results-oriented questions (e.g., how much did you do? How well did you do it? Is anybody better off?). As Urban says, "It is a constant reminder to legislators to ask those questions and to focus on results."[209]

Such efforts are works in progress. Urban complains that many measures are still process-oriented, and much of the transportation information legislators want is not yet available, especially in areas such as environmental stewardship and economic development. Still, the very fact that some legislators want more information is a sign of success, and lawmakers are increasingly referring to the quality of life statement that the "transportation system is maintained in a state of good repair and allows for safe efficient movement of people and goods, livable communities and sustainable growth," she says.[210]

Increase the use of cost-benefit and other types of economic analysis in making transportation decisions. "There's a rich opportunity to help all states, including our state, best identify and compare costs and quality when we and others are asked to do a cost-benefit analysis," says Wisconsin's auditor, Janice Mueller.[211]

In countries such as France, cost-benefit analysis is used to support decision making related to transportation infrastructure, according to World Transit Research.[212] But the use of such data in decision making is uncommon in the United States. As noted, the GAO reported in 2010 that only 11 states cited economic analysis as being of great or very great importance in their decisions to include projects in their statewide transportation plans. The kinds of tools discussed by the GAO include not only cost-benefit analysis and cost-effectiveness analysis, in which the different costs and benefits of different options are compared, but also economic impact analysis, in which states derive the impact of alternative approaches on the local, regional or national economy.[213]

Some states are trying to employ these tools more often. Washington State transportation leaders, for example, wanted to consider whether it was worthwhile investing money in center-line rumble strips to help prevent center crossover collisions on the roads. Such crashes tend to be particularly dangerous and expensive. The state had been using these devices but wanted to ensure they were worthwhile. It assessed the cost of installing those strips against

the societal cost of the crashes prevented and determined that centerline rumble strips provide a return on investment of approximately 25 to one.[214]

But even states that require such analysis by statute may not be optimizing its use. "We have some statutes that purport to require economic analysis but the requirements are vague and unenforced and to the extent that economic analysis is undertaken, it's done when there's a lot of political pressure and then it becomes highly politicized," says Loren Kaye, president of the California Foundation for Commerce and Education. "A routine academic, high-quality, useful economic analysis, whether cost-benefit or cost-effectiveness or least-cost analysis, is done rarely and is not part of the public policy culture."[215]

Better connect goals, measures and plans. Most states understand the utility of goal setting and are reasonably active in establishing goals. But figuring out how to measure progress is more difficult. For example, the Pew-Rockefeller research found that while 48 states and Washington, DC, have goals relating to jobs and commerce, only 39 have any core performance measures. This is akin to a student planning to get a college degree, but never looking at his grades to see if he is actually going to get a diploma on commencement day.

The GAO suggests that using performance targets in long-range statewide transportation plans would enable state departments of transportation to show the impact of funding decisions on achieving goals.[216] It highlights states such as Pennsylvania, which includes strategies for achieving goals and a timeline for action within its long-range plan.[217] In addition, Pennsylvania has emphasized the importance of its measures in its Governor's Performance Report by explaining why those indicators are being tracked in the first place. For each indicator, there is an explanation of "Why this objective is important" and descriptions of how funding allocations affect performance.[218] (Pennsylvania was deemed as having mixed results overall in the Pew-Rockefeller assessment, just missing earning the top distinction; the state is leading in every area except environmental stewardship, where it does not present core outcome measures showing the effects of transportation on the environment.)

Track citizen feedback on transportation experience. Researchers who examine citizen input on government decision making note that transportation yields particularly rich opportunities because the public interacts with transportation services on a frequent basis and has strong feelings about what they need and what they do not like—for example, a lane that is closed for repairs for a long period without any apparent repairs taking place.

The Trailblazer program, which is run through the Center on Government

Performance at the National Center for Civic Innovation, works with 70 cities and counties on developing ways to tap citizen input in transportation and other services. "People need information about transportation and they need to be able to tell decision makers what's important to them. That kind of communication is key to making good decisions. But that's often not the way decisions are made," says Barbara Cohn Berman, director of the center.[219]

Still, a few states demonstrate the value of this particular tool. Delaware, for example, conducts an annual written survey of a number of different user groups including transit riders, as well as a statewide telephone survey of residents. Results from this survey are linked to five of the six broad goals on which this report focuses (the exception is environmental stewardship).

Policy makers have paid attention. For example, according to Mark Eastburn, a planner in the Delaware Department of Transportation, the state survey showed that the two highest priorities for transit riders were having shelter from the rain when waiting for transit and receiving better information about delays. The result: The state installed more covered shelters and implemented a real-time GPS digital sign system at the larger transit stops.[220]

Improve intergovernmental and interagency coordination. A multitude of stakeholders are involved in transportation decision making, and they are found both inside and outside states' borders. For example, the federal-state relationship is of critical concern, particularly given the fact that the federal government provides funding for more than 30 percent of state spending on transportation. And, as discussed previously, federal coordination of state efforts has helped accelerate progress dramatically in areas such as safety.

Within the states themselves, various agencies must work together carefully to achieve the best outcomes. A 2008 AASHTO study noted "an increasing number of transportation and conservation professionals are finding that integrated planning is helping both sectors achieve their missions more effectively."[221] Similarly, the success of a comprehensive economic development strategy depends on a well-wrought transportation system.

Finally, there is the critical relationship between the states and their localities. The distribution of transportation responsibilities among states and localities varies widely. North Carolina, for example, is in charge of more than three-quarters of the roads within its borders.[222] Michigan controls just 8 percent.[223]Among the questions joint control raises: When funding and responsibility is shared, how much do the goals of one level of government dictate practices on another level? Are local governments collecting the

kind of data that enable state legislators to make road funding allocations based on actual road conditions, rather than on politics? Are local governments sufficiently funded or staffed to collect such data?

Beyond metropolitan planning organizations, states also have to work with other local entities involved in transportation decisions. Difficult fiscal times in Michigan, for example, have led to an evolution in the relationships between county road commissions and the Michigan Department of Transportation. "Prior to 2002, there was some distrust," says Brian Sanada, the department's asset management coordinator. "Everybody had their own silo and didn't look beyond that. . . . Now, in the past nine years, there has been a lot of trust gained and a lot of information collected." For example, to make better use of the funds that are available, state legislators began pushing road commissions and villages to adopt asset management tools, which have been used by Michigan's transportation department for about two decades. State, regional and local officials also began working together on rating road conditions and assessing maintenance projects to provide consistent information from which legislators could make decisions about relative levels of need.[224]

Conclusion

With limited resources available, state policy makers are being forced to make difficult choices about transportation policies and spending. But the need for more strategic and data-driven deliberation goes beyond the immediate budget crisis. Transportation plays a vital role in every state's ability to bolster jobs and commerce, improve mobility and access, help ensure public safety and protect the environment.

The desire for these results has spawned a growing realization that states need to drive their transportation policies and spending decisions with explicit goals, outcome-oriented performance measures and solid data. The states vary a great deal in the degree to which they accomplish this, as this study by the Pew Center on the States and the Rockefeller Foundation has determined.

Our research shows that even the states in which transportation investments and policy choices may be most thoroughly guided by results-based decision making still have a distance to go before they can declare victory. But a growing number of policy makers understand the value of such efforts—and that is reason for cautious optimism.

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Appendix A: State-By-State Ratings

	OVERALL	SAFETY	JOBS AND COMMERCE	MOBILITY	ACCESS	ENVIRONMENTAL STEWARDSHIP	INFRASTRUCTURE PRESERVATION
ALABAMA	Trailing behind	Leading the way	Mixed results	Mixed results	Mixed results	Trailing behind	Leading the way
ALASKA	Trailing behind	Leading the way	Mixed results	Leading the way	Mixed results	Trailing behind	Leading the way
ARIZONA	Trailing behind	Leading the way	Trailing behind	Mixed results	Leading the way	Mixed results	Leading the way
ARKANSAS	Trailing behind	Leading the way	Mixed results	Trailing behind	Trailing behind	Mixed results	Leading the way
CALIFORNIA	Leading the way	Leading the way	Mixed results	Leading the way	Leading the way	Leading the way	Leading the way
COLORADO	Mixed results	Leading the way	Leading the way	Leading the way	Trailing behind	Leading the way	Leading the way
CONNECTICUT	Leading the way	Leading the way	Mixed results	Leading the way	Leading the way	Leading the way	Leading the way
DELAWARE	Mixed results	Leading the way	Leading the way	Leading the way	Mixed results	Mixed results	Leading the way
DIST. OF COLUMBIA	Mixed results	Leading the way	Trailing behind	Leading the way	Leading the way	Trailing behind	Leading the way
FLORIDA	Leading the way	Leading the way	Mixed results	Leading the way	Leading the way	Leading the way	Leading the way
GEORGIA	Leading the way	Leading the way	Leading the way	Leading the way	Leading the way	Mixed results	Leading the way
HAWAII	Trailing behind	Leading the way	Mixed results	Mixed results	Mixed results	Trailing behind	Mixed results
IDAHO	Mixed results	Leading the way	Trailing behind	Mixed results	Leading the way	Leading the way	Leading the way
ILLINOIS	Mixed results	Leading the way	Mixed results	Leading the way	Leading the way	Mixed results	Leading the way
INDIANA	Trailing behind	Leading the way	Mixed results	Leading the way	Mixed results	Trailing behind	Mixed results
IOWA	Mixed results	Leading the way	Leading the way	Trailing behind	Leading the way	Mixed results	Leading the way
KANSAS	Mixed results	Leading the way	Leading the way	Leading the way	Mixed results	Mixed results	Mixed results
KENTUCKY	Trailing behind	Leading the way	Mixed results	Mixed results	Trailing behind	Trailing behind	Mixed results
LOUISIANA	Trailing behind	Leading the way	Trailing behind	Mixed results	Mixed results	Trailing behind	Leading the way
MAINE	Mixed results	Leading the way	Mixed results	Mixed results	Mixed results	Leading the way	Mixed results
MARYLAND	Leading the way	Leading the way	Leading the way	Leading the way	Leading the way	Leading the way	Leading the way
MASSACHUSETTS	Mixed results	Leading the way	Mixed results	Leading the way	Mixed results	Mixed results	Leading the way
MICHIGAN	Mixed results	Leading the way	Leading the way	Leading the way	Leading the way	Trailing behind	Leading the way
MINNESOTA	Leading the way	Leading the way	Leading the way	Leading the way	Leading the way	Leading the way	Leading the way
MISSISSIPPI	Trailing behind	Leading the way	Trailing behind	Mixed results	Mixed results	Trailing behind	Mixed results
MISSOURI	Leading the way	Leading the way	Leading the way	Leading the way	Leading the way	Leading the way	Leading the way

(continued)

Appendix A: State-By-State Ratings

(continued)

	OVERALL	SAFETY	JOBS AND COMMERCE	MOBILITY	ACCESS	ENVIRONMENTAL STEWARDSHIP	INFRASTRUCTURE PRESERVATION
MONTANA	Leading the way	Leading the way	Leading the way	Leading the way	Leading the way	Mixed results	Leading the way
NEBRASKA	Trailing behind	Leading the way	Trailing behind	Mixed results	Mixed results	Mixed results	Leading the way
NEVADA	Trailing behind	Leading the way	Trailing behind	Leading the way	Mixed results	Trailing behind	Leading the way
NEW HAMPSHIRE	Trailing behind	Leading the way	Trailing behind	Mixed results	Trailing behind	Mixed results	Mixed results
NEW JERSEY	Mixed results	Leading the way	Mixed results	Leading the way	Leading the way	Trailing behind	Leading the way
NEW MEXICO	Trailing behind	Leading the way	Trailing behind	Trailing behind	Leading the way	Mixed results	Leading the way
NEW YORK	Mixed results	Leading the way	Mixed results	Leading the way	Mixed results	Leading the way	Leading the way
NORTH CAROLINA	Mixed results	Leading the way	Mixed results	Leading the way	Mixed results	Leading the way	Leading the way
NORTH DAKOTA	Mixed results	Leading the way	Mixed results	Mixed results	Mixed results	Mixed results	Mixed results
OHIO	Mixed results	Leading the way	Mixed results	Leading the way	Leading the way	Mixed results	Leading the way
OKLAHOMA	Trailing behind	Leading the way	Mixed results	Mixed results	Mixed results	Trailing behind	Mixed results
OREGON	Leading the way	Leading the way	Leading the way	Leading the way	Leading the way	Leading the way	Leading the way
PENNSYLVANIA	Mixed results	Leading the way	Leading the way	Leading the way	Leading the way	Trailing behind	Leading the way
RHODE ISLAND	Mixed results	Leading the way	Trailing behind	Leading the way	Leading the way	Leading the way	Mixed results
SOUTH CAROLINA	Trailing behind	Leading the way	Trailing behind	Mixed results	Leading the way	Trailing behind	Mixed results
SOUTH DAKOTA	Trailing behind	Leading the way	Mixed results	Mixed results	Leading the way	Trailing behind	Leading the way
TENNESSEE	Trailing behind	Leading the way	Trailing behind	Mixed results	Mixed results	Mixed results	Leading the way
TEXAS	Leading the way	Leading the way	Leading the way	Leading the way	Leading the way	Mixed results	Leading the way
UTAH	Leading the way	Leading the way	Mixed results	Leading the way	Leading the way	Leading the way	Leading the way
VERMONT	Mixed results	Leading the way	Leading the way	Mixed results	Leading the way	Mixed results	Leading the way
VIRGINIA	Leading the way	Leading the way	Leading the way	Leading the way	Leading the way	Leading the way	Leading the way
WASHINGTON	Leading the way	Leading the way	Leading the way	Leading the way	Mixed results	Leading the way	Leading the way
WEST VIRGINIA	Trailing behind	Leading the way	Mixed results	Trailing behind	Mixed results	Trailing behind	Leading the way
WISCONSIN	Mixed results	Leading the way	Mixed results	Mixed results	Mixed results	Mixed results	Leading the way
WYOMING	Trailing behind	Leading the way	Trailing behind	Mixed results	Mixed results	Trailing behind	Leading the way

SOURCE: Pew Center on the States and the Rockefeller Foundation, 2011.

Appendix B: Methodology

Overview

In fiscal year 2010, states spent an estimated $131 billion in taxpayer dollars on transportation. Yet most policy makers cannot answer critical questions about what those dollars are buying. How do states track and measure the return on their substantial investments? And how do they set priorities for transportation projects that shape other policy goals—from economic development and public safety to environmental sustainability—that lawmakers and taxpayers have identified as priorities?

This study focuses on the statewide surface transportation system operated across all modes of transportation: roads, highways, bridges and bus and rail. We focus on states because they play a significant role in developing, financing and operating the transportation system and are often best positioned to track outcomes of the system. In some cases, such as Amtrak, local transit or freight rail, the state government may not be the direct operator of the system, but it has an interest in coordinating policy and investments across these and other transportation modes.

Our research analyzes whether states have goals, performance measures and data in place to track and evaluate the results they are getting from their transportation systems, particularly those that advance six broader policy areas: safety, jobs and commerce, mobility, access, environmental stewardship and infrastructure preservation. The study does not evaluate whether states actually have achieved these results, but rather, whether they have the essential tools in place to help them understand if and to what degree they are making progress. For this reason, the primary units of analysis are the measures that states use to assess their performance. We use the terms "measure" and "indicator" interchangeably.

We sought to design an assessment framework that could be applied as objectively and systematically as possible to all states across the six goal areas. We reviewed more than 800 performance, planning and budget documents—on average, 17 documents per state—and identified more than 1,950 performance measures. Given the fledgling state of the field in developing goals, performance measures and data in areas such as access, jobs and commerce and environmental stewardship, we assessed whether states could meet a baseline threshold in each of the six areas examined. Specifically, a state with a goal and one performance measure, with additional supporting information such as timely data, targets, breakouts, comparisons and explanations about changes in performance, may have received the same rating as a state with multiple measures and supporting information. Readers should be cautious

in interpreting the results; for example, states that are "leading the way" in our assessment are performing relatively better than other states, but in many cases still have room for progress.

Researchers and journalists at the Pew Center on the States conducted the analysis and wrote the report. We contracted with Harry Hatry, an expert on performance management at the Urban Institute, and several of his colleagues at Urban to assist with data collection and ratings of states. The project team also interviewed a range of transportation experts, state policy makers and agency officials, and researchers in the field. Pew convened an advisory panel of seven experts with deep research, policy and government experience to help develop our assessment framework. This panel provided exceptionally valuable guidance and feedback on our methodology and research approach at the outset of this effort, but was not involved in conducting the analysis or rating the states. Two experts—including one member of the advisory panel—reviewed drafts of the report to help us ensure accuracy. Neither they nor members of the advisory panel necessarily endorse the report's findings or conclusions. (See Appendix C for a list of the panel members and expert reviewers.) All of this work was principally conducted between September 2010 and February 2011.

This research presented a number of challenges. First, despite the importance of transportation to the six key goals, there generally is a dearth of outcome data with which to assess how states are doing, and methods of tracking and measuring performance in transportation are still evolving, particularly in areas such as jobs and commerce, access and environmental stewardship. Second, unlike in other areas such as financial reporting, there are few clear standards or consistent practices in the area of performance measurement. Third, the information we sought to assess—states' goals, performance measures and data for their transportation systems—is not housed in one agency or database; rather, it can be found in myriad documents across both the executive and legislative branches in each state, and in myriad forms. So while every effort was made to be comprehensive, the lack of data or standard reporting protocols in some goal areas (e.g., jobs and commerce) and the wide range and locations of potentially relevant documents across the 50 states and Washington, DC, likely means that some information was missed.

Literature Review

Project researchers undertook a targeted and systematic review of the performance measurement literature relevant to transportation to inform the methodology. We consulted a wide variety of sources, including research and analysis from academic literature, federal and state government agencies, nonprofit and for-profit research groups and think tanks, advocacy organizations and foundations. We studied both empirical and normative

research on transportation performance systems, including information on state strategic planning processes, performance accountability in transportation decision making, and federal, state and local use of performance metrics. We also looked at performance management research outside of the transportation sector. Drawing on this wide body of information, we identified the six key policy goals for states' transportation systems, selected the criteria with which to assess states, identified performance measures within each of the six goal areas and developed a scoring system.

Development of the Six Policy Goals and Classification of Performance Measures

The six goals identified as linked to states' transportation systems—safety, jobs and commerce, mobility, access, environmental stewardship and infrastructure preservation—are generally accepted by policy makers, practitioners and researchers as being particularly crucial to states' economic well-being and taxpayers' quality of life.

The six goals provided the framework for grouping and comparing the more than 1,950 performance measures we identified. Not all transportation measures identified in the states' documents we reviewed were included. For example, quality-of-life measures not connected to one of the six key goals were excluded from our analysis; similarly, we did not look at performance indicators measuring state transportation systems' budget levels or adequacy, or at other internal management indicators states may have reported, such as time required to fill vacant positions.

Document Search and Review

For all states and the District of Columbia, we conducted an extensive Internet search to identify publicly available, high-level, statewide planning and performance documents that reflected states' transportation goals, performance measures and data. We conducted a comprehensive scan of all states' department of transportation websites and reviewed governors' recent budget proposals (mostly the annual budgets for fiscal year 2011 and biennial budgets for fiscal years 2010-2011). We searched for documents focused on tracking agency performance on a regular basis (for example, quarterly or annually), including information on state websites focused on reporting performance. We did not include draft documents or documents released after December 31, 2010, in our review.

Finally, we contacted officials in the transportation departments and budget offices in all 50 states and the District of Columbia to confirm that our document search had yielded all relevant materials. Specifically, these offices were asked to confirm that we had identified the appropriate universe of publicly available

documents related to transportation planning and performance management in that state. In each case, officials were provided with an overview of the study and a list of documents we already had identified. State transportation department personnel contacted included officials in the areas of planning, policy, performance management, budget and the secretary's office. State budget office personnel contacted included analysts, managers and public information officers.

A full list of all documents reviewed is in Appendix F and available at www.pewcenteronthestates.org/transportation.

We did not affirmatively search for documents produced by other non-transportation or budget agencies (e.g., environmental or economic development agencies). Given the breadth of the six goals we identified, relevant documents potentially existed across an enormous spectrum of agencies in each state, including those dealing with finance, transportation, economic development, workforce development, environment, energy, human services and health. This methodology focused on the three areas of state government where transportation goals and performance measures converge most frequently, are most likely to appear and can be linked to resource allocation decisions: state transportation departments, state budget offices and statewide performance tracking documents or web tools. However, when documents from state transportation departments or budget offices referenced materials produced by other agencies—or when personnel we contacted directed us to those materials—those documents were included in our review. Additionally, we did not search the websites of local transit authorities or local governments for documents showing performance management of assets under their control. If the state documents we reviewed included performance measures and outcomes from local transit authorities and local governments, though, those were included in our assessment. Finally, we were unable to review any document that was not available online or provided to us by state officials.

In every instance, we reviewed the most recent version of relevant documents. Any materials that were released before 2007 were not included in our review unless they were long-range planning documents. Exceptions were made for long-range planning documents because the expectation is that they will be produced infrequently and information in these may be used to set policy over a longer time frame.

Because multiple researchers collected and reviewed the information, the project team developed a written protocol so that all researchers would review documents in a consistent manner. The protocol included guidelines on how to search, interpret, record and reference information from these documents. Pew's researchers met internally and with the contractors at the Urban Institute on a frequent basis to ensure we used the most consistent and valid approach possible.

Assessment and Scoring

After categorizing appropriate performance measures collected from state documents in one of the six goal areas, we established 10 criteria for scoring states: (1) presence of goals; (2) presence of performance measures; (3) presence of data; (4) availability of timely data; (5) setting of targets; (6) reporting of breakout information organized by sub-categories; (7) presence of comparative information; (8) inclusion of explanations about change in performance; (9) presence of citizen satisfaction measures; and (10) inclusion of transit-related outcomes. The criteria reflect key elements of good practice in performance measurement. The full list of criteria is included in Appendix D.

The criteria are limited to key performance elements that can be captured from a document review. This meant that we were not able to evaluate how individual policy decisions are actually made at the state level, including whether decisions are grounded in evidence, whether inter-agency cooperation was part of the decision-making process or whether policies were targeted at meeting agreed-upon goals. The approach we used acknowledges that states are still in the process of learning how best to use performance measurement information in making policy decisions.

Each criterion can be applied in a reasonably objective manner and our assessment approach was vetted by a number of experts in the field (see description of advisory panel and external reviewers above and in Appendix C). Each state was independently scored by at least three researchers, and scores were subsequently discussed and compared to make sure subjectivity was minimized. The scoring rules reflect three important and consequential decisions for the assessment:

Performance measures considered core—those which most directly reflect outcomes—received more credit than non-core outcome measures. For example, congestion is a core performance measure of mobility; the number of calls to roadside assistance is not. A state with a core performance measure could receive up to five additional points on a 20-point scale compared to a state with only non-core measures. Core measures were those cited most frequently in the literature as being critical to measuring and understanding progress in each goal area.[1] A list of core performance measures organized by goal area is included in Appendix E.

States do not uniformly or consistently align their performance measures according to the six goals we identified. To conduct a consistent and fair assessment, we assigned performance measures to each of the six goals to which it is most directly linked. In some cases this was consistent with the state's own practice. For example, all states classify fatalities under the goal of safety. On the other hand, some states classify measures such as bridge and road conditions under economic development,

rather than infrastructure preservation. While road and bridge conditions can contribute to economic development, they are not direct measures of that goal.

States were given credit for each performance measure in one goal area only, so no measures were "double-counted." It is common practice for states to classify certain measures under multiple categories (or none at all). States were neither credited nor penalized for using the same performance measure multiple times. For example, states may count congestion as a measure under access, mobility and jobs and commerce, but for the purposes of our assessment, congestion is classified only under mobility because it is most relevant to that goal.

States could receive a maximum of 20 points in each goal area. Based on point totals, we rated states according to three categories: leading the way, having mixed results or trailing behind. We set the point thresholds in thirds. A score of 14 or higher put a state in the leading the way category, while states with between seven and 13 points were classified as having mixed results. States with zero to six points were deemed as trailing behind.

Rating Category	Score Range in Goal Area
● Leading the way	14–20
● Mixed results	7–13
● Trailing behind	0–6

States also were given an overall rating—that is, how they rated across all six goals combined. Thirteen states earned the top distinction in at least five goal areas and were not trailing behind in any area, earning an assessment of leading the way overall. Meanwhile, a number of states earned the top distinction in three or fewer areas and the lowest distinction in at least one area, earning an overall assessment of trailing behind. States leading the way in four goals OR leading the way in three or fewer goals without trailing behind in any goal OR leading the way in five goals but trailing behind in one goal earned an assessment of having mixed results overall.

Rating	Overall Assessment
● Leading the way	Leading the way in at least five goal areas; not trailing behind in any area
● Mixed results	Leading the way in four goal areas OR leading the way in three or fewer goal areas and mixed results in the remaining areas; OR leading the way in five goal areas and trailing behind in one goal area
● Trailing behind	Leading the way in three or fewer areas; trailing behind in at least one area

Appendix C: Advisory Panel And Expert Reviewers

The initial exploration of the study and development of the methodology benefited greatly from the following members of an advisory panel convened by Pew. Neither they nor their organizations necessarily endorse the report's findings or conclusions.

Organizations listed for affiliation purposes only.

Geoffrey Anderson	President and CEO, Smart Growth America
Linda Bailey	Federal programs advisor, New York City Department of Transportation and National Association of City Transportation Officials
Emil Frankel	Director of Transportation Policy, Bipartisan Policy Center
Astrid Glynn	Former commissioner, New York State Department of Transportation
Jacky Grimshaw	Vice president of Policy, Center for Neighborhood Technology
Robert Puentes	Senior fellow, Metropolitan Policy Program, Brookings Institution
Gary Toth	Senior director, Transportation Initiatives, Project for Public Spaces; formerly director of Project Planning and Development, New Jersey Department of Transportation

Expert Reviewers

This report benefited tremendously from the insights and expertise of two external reviewers: Phil Herr, director, Physical Infrastructure Issues, U.S. Government Accountability Office, and Robert Puentes, senior fellow, Metropolitan Policy Program, Brookings Institution. These experts provided feedback and guidance at critical stages of the project. While they have screened the report for accuracy, neither they nor their organizations necessarily endorse its findings or conclusions.

Appendix D: Assessment Criteria

Our assessment criteria draw on best practices in the field of performance measurement. Two key sources were instrumental in developing the criteria:

1) Governmental Accounting Standards Board, *Suggested Guidelines for Voluntary Reporting SEA Performance Information (Norwalk, CT: 2010).*

The Governmental Accounting Standards Board (GASB) is an independent organization that establishes and improves standards of accounting and financial reporting for U.S. state and local governments. The GASB is the source for generally accepted accounting principles used by state and local governments. In addition to financial reporting, the GASB recognizes the importance of performance measures and reporting, and in 2010, after two decades of extensive research, monitoring and constituent outreach, it released suggested guidelines for performance reporting.

2) National Performance Management Advisory Commission, *A Performance Management Framework for State and Local Government: From Measurement and Reporting to Management and Improving (Chicago, IL: 2010).*

The National Performance Management Advisory Commission is a collection of 11 leading state and local public interest organizations that joined together to create a principle-based framework for public sector performance measurement and management.[2] The framework draws on the expertise of the participating organizations and provides a practical and authoritative guide for performance measurement.

The following describes each of the 10 criteria on which the Pew-Rockefeller ratings were based, the scoring rules and the rationale for inclusion.

Setting goals

1. Does the state set goals in each area?

Scoring: States receive two points for having goals, zero points for no goal.

Rationale: Goals are critical because they communicate to citizens and policy makers what the transportation system is trying to accomplish. Goals both articulate priorities and provide the basis for determining the appropriate measures for tracking progress.[3]

Presenting performance measures

2. Does the state have performance measures or outcome indicators that track progress?

Scoring: States receive two points if they present one or more core performance measures in the goal area; one point if the performance measures are not considered core; zero points if there are no performance measures.

Rationale: Goals are intended to convey the long-term achievements that a program is striving for and objectives are short-term statements of what the program expects to achieve.[4] Core performance measures are necessary for showing the level of achievement of goals and objectives. In our methodology, core performance measures reflect the indicators cited most frequently in the literature as being critical to measuring and understanding outcomes in each goal area. From a resource perspective there is shift of emphasis from inputs—dollars, people and other resources—to the outcomes that result from those inputs.[5] Outcome indicators are essential for linking program performance to resources.

Providing data

3. Does the state present data for outcome indictors?

Scoring: States receive two points if they present data for one or more core performance measures in the goal area; one point for presenting any data; zero points for no data.

Rationale: Performance data are essential for tracking and understanding results.[6] According to the GASB, objectives should be quantifiable and measurable for purposes of comparison to what the program expects to achieve. Data allow an organization to know what caused a particular result for replication and improvement purposes.[7]

Providing timely data

4. Are the latest available data on core performance measures timely?

Scoring: States receive two points if they present data for at least one core performance measure from 2010 or 2009; one point for data for a core performance measure from 2008; zero points if the data are from prior years.

Rationale: Decisions and processes should be driven by timely, accurate and meaningful data.[8] Timely performance data is considered an essential component of an effective performance management system.[9] Because providing timely data may be challenging for some performance measures, our methodology only requires timely data for at least one core performance measure—not all of them—in each area.

Breaking down the numbers

5. Does the state report breakouts for its core performance measures?

Scoring: States receive two points if they present breakouts and data for at least one core performance measure; one point for breakouts and data for non-core performance measures or for breakouts without data for core performance measures; zero points if there are no breakouts.

Rationale: Breakouts are the disaggregation of data by region,

geographic area, neighborhood or economic or demographic characteristics, among others. Breakouts allow for comparisons across these characteristics. The GASB states that to effectively assess performance, key measures need to be supported by comparisons. Disaggregating the data also can improve the relevance of the material to the user.[10]

Setting performance targets

6. Does the state present out-year targets for its core performance indicators?

Scoring: States receive two points if they present one or more targets for the current budget year and one or more targets for the years ahead; one point for either one or more budget-year targets or one or more out-year targets; zero points if there are no targets.

Rationale: Targets are a way to meaningfully show whether a program is achieving the level of results anticipated. Specifically in the area of transportation, the U.S. Government Accountability Office notes that targets "could provide a performance standard by which the state DOT can demonstrate to the public what effect decisions are having on achieving the goals established in the plan."[11]

Drawing comparisons

7. Does the state provide comparisons? Does it identify past targets for at least one performance measure and explain the extent to which those targets were met?

Scoring: States receive one point if they provide comparisons for at least one performance measure to at least one past year of their own performance; one point for providing any external comparison, such as to other states, the national average or an industry standard; one point for providing at least one past target and data showing the extent to which it was met; zero points for no comparisons. Points are additive so states can receive up to three points—one point for each type of comparison.[12]

Rationale: Comparisons are a form of benchmarking. "Benchmarking is one of the ways to understand organizational performance. It works by comparing an organization's performance to that of organizations having similar missions, scope, and responsibilities," according to the National Performance Management Advisory Commission.[13] Comparisons can be made internally over time or against established targets or externally against other entities providing similar services (e.g., other states). Care should be taken when comparing externally to ensure the information is comparable, the entities operate in a similar environment and the information is collected reliably.[14] Comparisons made over time and with targets are the main types used for external reporting. While time series reports

show whether performance is improving, targets indicate whether the results are at acceptable levels. It is important to note that targets can be set too high or too low, so comparing to prior results assists in assessing the reasonableness of the target.

Explaining results

8. Does the state provide explanations for its performance over time?

Scoring: States receive two points if they provide an explanation of the current data for at least one performance measure; one point for any explanation for at least one performance measure; zero points if no explanation is provided.

Rationale: Objective explanations for changes in performance over time explain why actual results differ from expected or intended results. The explanations should include positive and negative aspects of the government's performance as well as known facts and circumstances that could affect results in the future.[15]

Incorporating citizen and customer feedback

9. Does the state present performance indicators on citizen satisfaction?

Scoring: Within each of the six goal areas, states receive one point if they present information on citizen satisfaction connected to the goal area; zero points if there are no measures that capture citizen satisfaction.[16]

Rationale: Citizen and customer perceptions of the quality and satisfaction with the results of service add perspective on the extent to which the program is meeting its goals and whether the results are relevant to their ultimate users. They also can be collected to dovetail with the other performance measures.[17]

Considering performance of all transportation modes

10. Do the state's outcome indicators incorporate passenger transit performance?

Scoring: States receive two points if their performance measures and data incorporate public transit passenger performance; zero points if they do not.

Rationale: A multimodal approach to performance measurement is preferable to a one-mode approach and allows for the analysis of tradeoffs between different modes of transportation. This gives credit to states that have incorporated passenger transit performance indicators, including transit-related breakouts by subcategory, in their performance measurement system.

Appendix E: Core Performance Measures by Goal

Safety	• Fatalities • Injuries • Crashes • Infrastructure related (e.g., hazard index, high crash areas) • Response to weather emergencies
Jobs and Commerce	• Jobs created • Freight tonnage or ton-miles or by value • Freight travel times/speeds • Infrastructure support for freight movement • Business access to freight services
Mobility	• Congestion/density • Delay • Travel times/speed • Travel time reliability • Accident response • Transit on-time performance
Access	• Access for elderly, disabled and low-income populations • Access to multimodal facilities and services (e.g., highway, transit, intermodal including freight) • Access to jobs and labor • Access to non-work activities
Environmental Stewardship	• Emissions • Fuel consumption/alternative fuels[20] (if specifically tied to a goal in this area) • Air quality • Water quality • Recycling
Infrastructure Preservation	• Road condition • Bridge condition (including all passenger and freight rail) • Remaining life of roads and bridges • Rail system condition (including all passenger and freight rail) • Transit vehicle condition

Appendix F: State Documents Reviewed for This Report

States' goals, performance measures, data and other information about their transportation systems can be found in myriad documents across both the executive and legislative branches. For this report, we conducted an extensive Internet search to identify publicly available, high-level, statewide planning and performance documents that reflected transportation goals, performance measures and data for all states and the District of Columbia. We then contacted officials in the transportation departments and budget offices in all 50 states and Washington, DC, to confirm that our document search had yielded all relevant materials. Ultimately, we reviewed more than 800 performance, planning and budget documents. Not all of the information from the documents on this list is necessarily reflected in a state's scores as some of the documents did not meet our criteria for inclusion. (See Appendix B for detailed information.)

The full list of documents reviewed for each state can be found at www.pewcenteronthestates.org/transportation.

Appendices Notes

1 U.S. Department of Transportation, "U.S. DOT Strategic Plan, FY2010-FY2015," draft for public comment, April 2010, http://www.dot.gov/stratplan/dot_strategic_plan_10-15.pdf (accessed February 11, 2011); National Transportation Policy Project of the Bipartisan Policy Center, "Performance Driven: A New Vision for US Transportation Policy," June 2009, http://www.bipartisanpolicy.org/sites/default/files/NTPP%20Report.pdf (accessed February 11, 2011); Cambridge Systematics, "Performance Based Management: State of the Practice White Paper," May 12, 2009, http://www.transportation.org/sites/scopm/docs/White%20Paper%20for%202009%20CEO%20Leadership%20Forum.pdf (accessed February 11, 2011); American Association of State Highway and Transportation Officials, AASHTO Authorization Policy: Performance Management Recommendations, 2009, http://www.transportation.org/sites/policy_docs/docs/i.pdf (accessed February 11, 2011); Cambridge Systematics, "Performance Measures and Targets for Transportation Asset Management," National Cooperative Highway Research Program Report 551, 2006, http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_551.pdf (accessed February 11, 2011); Cambridge Systematics, "A Guidebook for Performance-Based Transportation Planning," National Cooperative Highway Research Program Report 446, 2000.

2 Participating organizations: Association of School Business Officials International, National Association of State Budget Officers, the Council of State Governments, Government Finance Officers Association, International City/County Management Association, National Association of Counties, National Association of State Auditors, Comptrollers, and Treasurers, National Center for State Courts, National Conference of State Legislatures, National League of Cities, and the United States Conference of Mayors.

3 National Performance Management Advisory Commission, *A Performance Management Framework for State and Local Government: From Measurement and Reporting to Management and Improving.* (Chicago, IL: 2010).

4 Governmental Accounting Standards Board's, *Suggested Guidelines for Voluntary Reporting SEA Performance Information* (Norwalk, CT: 2010).

5 National Performance Management Advisory Commission, *A Performance Management Framework*, 25-26.

6 Ibid, 10.

7 Governmental Accounting Standards Board's *Suggested Guidelines for Voluntary Reporting SEA*.

8 National Performance Management Advisory Commission. *A Performance Management Framework*, 10.

9 Ibid, 39.

10 Governmental Accounting Standards Board's *Suggested Guidelines*.

11 Government Accountability Office, *Statewide Transportation Planning: Opportunities Exist to Transition to Performance-Based Planning and Federal Oversight*, December 2010, 15.

12 This criteria totals three points, more than any other criteria, because the points are additive and having all three types of comparisons represents a high-level of analytical information for use in policy making.

13 National Performance Management Advisory Commission. *A Performance Management Framework*, 29.

14 Governmental Accounting Standards Board's *Suggested Guidelines*; National Performance Management Advisory Commission. *A Performance Management Framework.*

15 Governmental Accounting Standards Board's *Suggested Guidelines.*

16 While important to give states credit for customer satisfaction, one point was given because states also receive relevant credit on other criteria for using citizen satisfaction as a performance indicator.

17 Governmental Accounting Standards Board's *Suggested Guidelines*.

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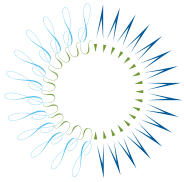

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